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Montana Economic Study

research report

part 1: THE MONTANA ECONOMY

Volume 3, Chapters 5-8

Montana's Regions and Selected Features of the State's Econom

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Montana's Regions and Selected Features of the State's Economy

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Montana Economic Study

Research Report

Project No. Montana P-31

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University of Montana
School of Business Administration
Bureau of Business and Economic Research

1970

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CHAPTER 5

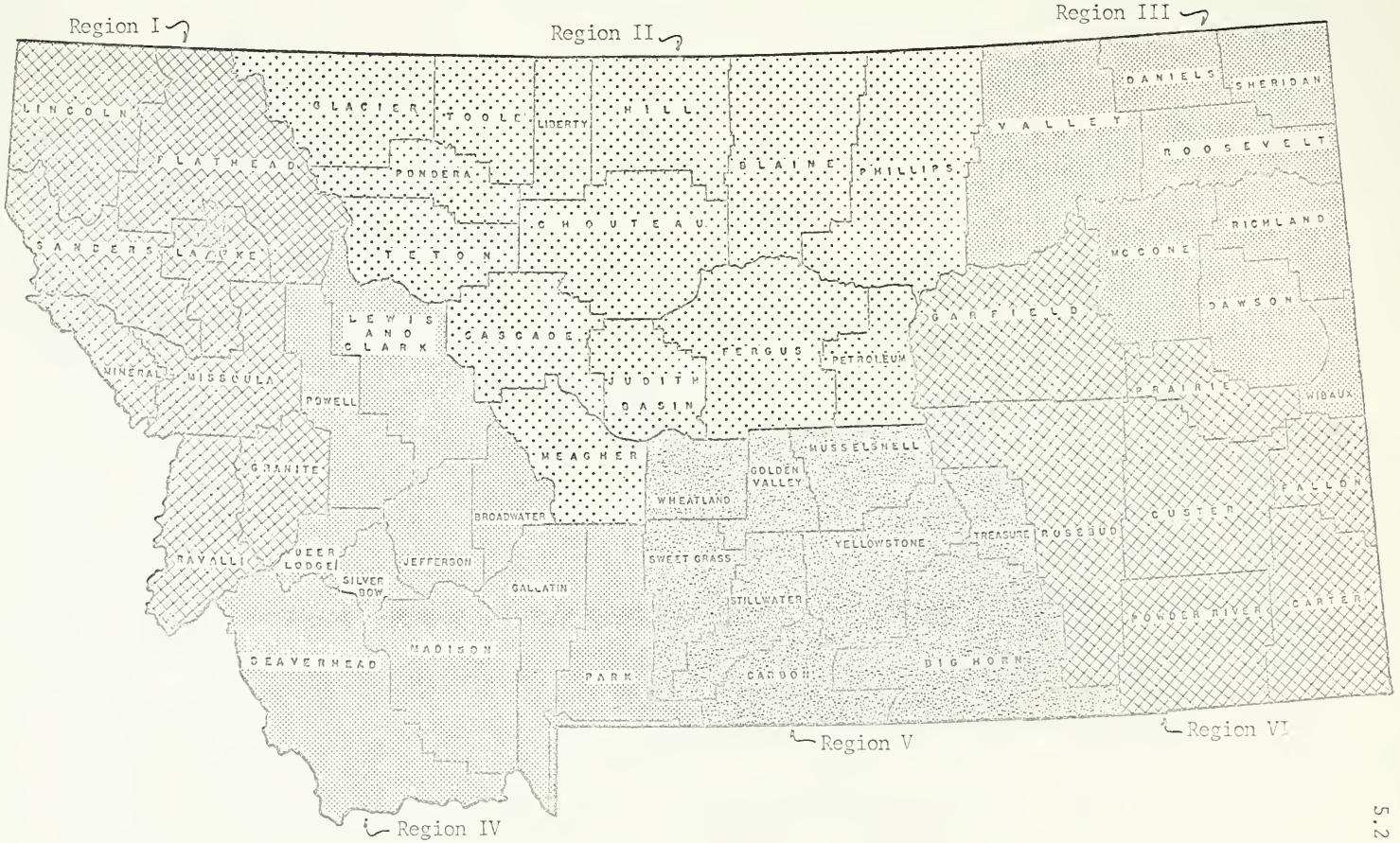
The Regions of Montana

There are substantial economic differences among the geographic areas of Montana, and one would be hard pressed to find a "typical" Montanan. Would he be a rancher from the eastern part of the state? A miner from Butte? A logger from the western forests? Clearly there is no satisfactory stereotype.

Even within the different regions of the state, diversity abounds, but it is more manageable, analytically, than it is at the state level. This chapter deals with the regional details of Montana's population, employment, and income. It includes, for each region, a discussion of developments in the 1950s and 1960s and projections for 1980.

We have divided Montana's 56 counties into 6 economic regions, shown in figure 5.1. The regions we have constructed are a compromise between two goals: drawing boundaries so as to minimize economic diversity within regions, and keeping the number of regions manageable.

Figure 5.1
Montana Economic Regions



There is enough diversity within each region to make generalization hazardous. At the same time, even as few as six regions are hard to keep in mind all at once.

The first section of this chapter takes a quick look at trends in population, income, and employment in each of the six regions. The second analyzes the economy of each region in greater detail, and presents projections of population, employment, and income for 1980.

Unless otherwise noted, military employment, which is important in Regions II and III, is excluded from the total employment figures referred to below. The reader should bear in mind that the personal income estimates--which are available on a regional basis for only a few years--are subject to extreme variability arising out of the year-to-year instability of farm income. The personal income figures used here are for 1950, 1959, and 1966. Statewide, 1950 and 1966 were years of relative prosperity for agriculture, while 1959 was a bad year. Consequently, most regions that depend heavily on agriculture show up relatively badly in 1959 and the other regions therefore show up relatively well in that year.

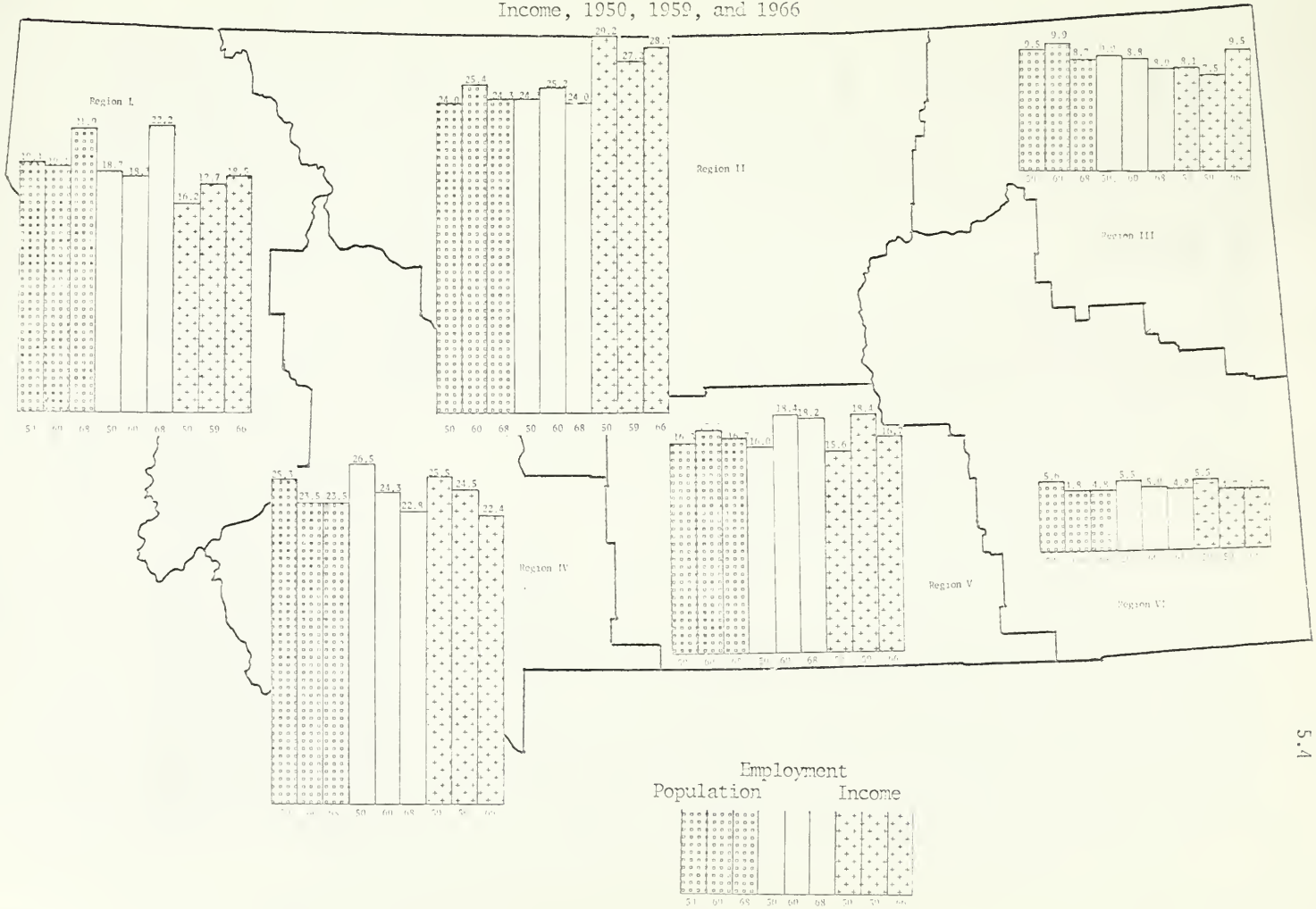
1950-1968: AN OVERVIEW

Region I (Western Montana)

Region I is the most diverse of the six regions. Among other things, it embraces large irrigated valleys, lumber operations on the west slope of the Rockies, and aluminum reduction facilities in Columbia Falls. It contains much of the state's most attractive recreational land and water, and does a heavy tourist business.

Figure 5.2

Percentage Share of State Population, Employment, and Income
Regions of Montana, Population and Employment, 1950, 1960, and 1968
Income, 1950, 1959, and 1966



Between 1960 and 1968, Region II's population dropped back to 24.3 percent of the state total, and its share of employment declined to 24.0 percent. Its share of the state's total personal income rebounded to 28.3 percent in 1966, and per capita income was 13 percent above the state average that year.

Overall, Region II's share of civilian employment appears to have followed a declining trend since 1950, even though its share of the state's population has increased slightly. In part this reflects the buildup of military personnel at Malmstrom Air Force Base, who are included in the population figures but not in total civilian employment.

The region's share of total personal income has been consistently larger than its share of population, which is to say that its per capita income has been above average. In fact, it has consistently been the highest in the state.

Region III (Northeastern Montana)

Region III has declined relative to the rest of Montana since 1950. Between 1950 and 1960, its share of population increased from 9.5 to 9.9 percent of the state total. In part, this reflected growth in Valley County resulting from the construction of Glasgow Air Force Base. But its share of civilian employment fell from 9.0 to 8.8 percent, and its share of total personal income dropped from 8.1 to 7.5 percent. Per capita personal income in Region III was 14 percent below the state average in 1950, and a startling 23 percent below it in 1959, when the region's main industry, agriculture, was depressed.

Between 1960 and 1968, Region III's share of state population fell to 8.7 percent, and its share of civilian employment dropped to 8.0 percent. In 1966, thanks to a good year for farming and ranching, per capita personal

income reached 92 percent of the state average. The closing of Glasgow Air Force Base has probably altered these figures significantly.

Region IV (Southwestern Montana)

In 1950 Region IV accounted for the largest share of Montana's population and employment, and its total personal income was nearly as large as that of Region II. However, since 1950 southwestern Montana has experienced a relative decline in all areas. Its share of the state population dropped from 25.3 percent in 1950 to 23.5 percent in 1960, and was still at the latter level in 1968. Its share of employment fell from 26.5 percent in 1950 to 24.3 percent in 1960, and then to 22.8 percent in 1968. Total personal income fell from 25.5 percent of the state total in 1950 to 24.5 percent in 1959, and then to 22.4 percent in 1966.

Per capita personal income in Region IV was above the state average in 1950 and 1959, by 1 percent and 4 percent respectively, but in 1966 it was 5 percent below the average.

The major reason for the relative decline of Region IV was decreased activity in Butte and Anaconda. Mining and smelting are, to be sure, only one part of the area's economy, but the dramatic decline of employment in this sector overwhelmed the growth in other activities.

Region V (South Central Montana)

During the 1950s the south central region increased its share of statewide population, employment, and income. The 1960s, however, saw reversals on all three counts.

In 1950, Region V accounted for 16.3 percent of Montana's population and by 1960 this share had risen to 17.3 percent. But it fell back to 16.7 percent in 1968. Employment in Region V rose from 16.0 percent of the state total in 1950 to 18.4 percent in 1960, and then declined slightly

to 18.2 percent in 1968. The region's share of the state's personal income increased sharply during the 1950s, from 15.6 percent in 1950 to 18.4 percent in 1959, but it fell back to 16.7 percent in 1966.

Per capita personal income was 4 percent less than the average for the state in 1950, 8 percent above it in 1959, and about the same as the average in 1966.

The large increases in Region V's share of population, employment, and income between 1950 and 1960 reflected a substantial growth of jobs in manufacturing, trade, service industries, and government. The relative decline experienced during the 1960s may represent simply a return to a more normal state of affairs, although employment in trade and services continued to rise rapidly during that period.

Region VI (Southeastern Montana)

Southeastern Montana depends heavily on agriculture, and the decline of this sector has had a pronounced impact on the economic health of the area. In 1950, Region VI accounted for 5.6 percent of the state's population and 5.5 percent of both employment and total personal income. By the end of the decade, its share of population had fallen to 4.8 percent, and of employment to 5.0 percent. Similarly, the region's share of total personal income fell, to 4.7 percent in 1959.

During the 1960s, the share of Montana's employment accounted for by Region VI declined further, to only 4.8 percent in 1968. The region's share of population remained at 4.8 percent in 1968, the same as it had been in 1960, and its share of total personal income was 4.7 percent, also unchanged from 1959.

To summarize, in terms of their shares of statewide population, employment, and income, Regions I and V grew significantly between 1950 and 1968. Regions III, IV, and VI have declined. Region II has remained fairly constant relative to the state as a whole.

A DETAILED LOOK AT THE SIX REGIONS, WITH PROJECTIONS FOR 1980

This section considers each region in detail. First the trends of population, employment, and income are considered. Then projections of these variables for 1980 are presented.

Region I (Western Montana)

Region I encompasses eight western counties--Flathead, Granite, Lake, Lincoln, Mineral, Missoula, Ravalli, and Sanders. Its largest cities are Missoula and Kalispell, which are the major regional trade centers. In 1950 the population of Region I was 114,454. By 1960 it had reached 128,541. Between 1960 and 1968 it mushroomed to 152,000.

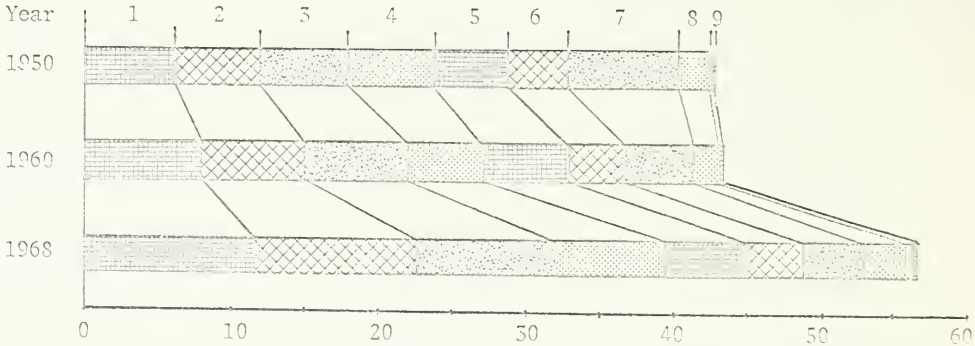
Total employment in Region I was 42,800 in 1950 (see figure 5.3). Over the next decade it inched up to 43,300. But from 1960 to 1968, employment increased by over 13,000, to 56,500.

Between 1950 and 1968, Region I underwent a transformation that saw manufacturing replace agriculture as the dominant industry. In 1950, agriculture employed 7,300 workers in Region I. By 1960, this figure had plummeted to 4,600, or by nearly 40 percent. Between 1960 and 1968, according to our estimate, agricultural employment declined only another 700 workers, to 3,900 in the latter year.

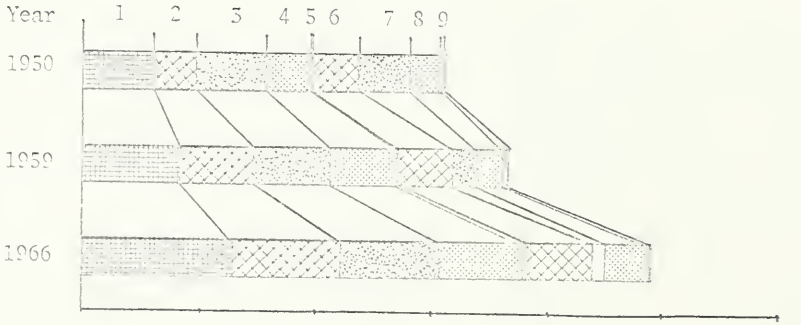
Figure 5.3

Region I: Employment and Income

Civilian Employment by Industry



Participation Income by Industry



Legend

1. Manufacturing
2. Government (including federal military)
3. Trade
4. Services
5. All other (see note)
6. Transportation and public utilities
7. Agriculture
8. Construction
9. Mining

Source: U.S. Department of Commerce; Montana Employment Security Commission; and Montana Economic Study.

Note: Employment data for agriculture include both self-employed and hired workers. "All other" employment consists of all self-employed workers outside agriculture and [illegible]. Participation income by industry includes agricultural services, forestry, and fisheries. Participation income by industry includes "other labor income."

Employment in manufacturing, on the other hand, increased from 6,200 in 1950 to 7,900 in 1960, and then jumped to 11,600 in 1968. Thus, just as the decline of agricultural employment was subsiding during the 1960s, the growth rate of manufacturing jobs was increasing enormously. These trends, combined with an accelerated growth of employment in other sectors--particularly construction, services, and government--produced, in Region 1, the fastest growth of any region in the state.

Almost all of the increase in manufacturing employment in Region 1 between 1950 and 1968 was related to the harvesting and processing of forest products, and by 1968, employment in lumber and wood products constituted almost 80 percent of all manufacturing jobs in the region. Other manufacturing activities include the Anaconda Company's aluminum reduction facilities in Columbia Falls and the Hoerner Waldorf pulp plant in Missoula. The latter is, of course, closely related to wood processing, but is classified separately in the statistics on manufacturing employment.

The growth of manufacturing employment in Region 1 was accompanied by a marked increase in government jobs, from 5.7 thousand in 1950 to 10.9 thousand in 1968. By the latter year, government accounted for over 19 percent of the region's total employment.

The picture of Region 1 is not so rosy when income statistics are considered. Total personal income in 1950, measured in dollars of 1958 purchasing power, was $187.7 million, or $1,640 per capita--only 84 percent of the statewide average. By 1959, the total personal income had risen to $234 million in 1958 dollars, and per capita personal income had climbed to $1,852, 93 percent of the statewide average. In 1966, the last year for which personal income estimates are available, Region 1's total personal income was $305 million in 1958 dollars. In per capita

terms, however, this amounted to only $2,131, 89 percent of the state average. In both 1950 and 1966, Region I had the lowest per capita personal income in the state. The 1959 figure was relatively better, but primarily because agricultural income, which is less important in Region I than in most of the rest of the state, was depressed that year.

Why does Montana's most dynamic region have the lowest per capita income? First, income per worker in agriculture has been very low in Region I ever since 1950. At $3,110 in 1958 dollars, participation income per worker in agriculture amounted to only 52 percent of the statewide average. By 1966, participation income per worker in agriculture had dropped precipitously, to $1,930, only 31 percent of the state average. Thus, despite the fact that agriculture is less important in Region I than it is in the rest of the state, income per worker in that industry is so low, and has fallen so fast, that it has acted as a drag on per capita income. It should be noted, however, that many of western Montana's agricultural workers are only part-time farmers and ranchers, and supplement their farm income by working in the area's wood products and other industries. This is the way of life that they prefer, and it results in the persistence of small farm units in Region I.

The contrast between the agricultural and nonagricultural sectors of Region I stands out vividly in table 5.1. In both 1950 and 1959, income per agricultural worker was only a little more than one-half of the average for the state; by 1966, it had dropped to less than a third of the state average. On the other hand, nonagricultural participation income per worker was 98 percent of the statewide average in 1950 and 116 percent in 1959. In 1966, however, it dropped to 91 percent of the statewide average. We do not have the data necessary to explain this decline. Nationally,

TABLE 5.1

Per Capita Personal Income and Civilian Participation Income Per Worker
Region I, 1950, 1959, and 1966
(1958 Dollars)

	Per Capita Personal Income		Agricultural Participation Income Per Worker		Civilian Nonagricultural Participation Income Per Worker	
	Dollars	Percentage of State Average	Dollars	Percentage of State Average	Dollars	Percentage of State Average
1950	$1640	83.8	$3110	52.3	$3750	97.9
1959	1852	93.3	2140	50.8	5080	116.0
1966	2131	89.2	1930	31.4	4560	90.5

Sources: U.S. Department of Commerce, Office of Business Economics; Montana Employment Security Commission; and Montana Economic Study.

1966 was a bad year for the housing industry, but employment in lumber and wood products rose in Montana.

All things considered, it does not appear to us that the growing sector of Region I's economy is acting as a drag on per capita income. The main factor seems to be low productivity of agriculture; the statistics overstate its influence because so many farmers and ranchers work only part-time in agriculture.

The problem of low farm income in Region I will probably not diminish in the 1970s. As the relative importance of this sector continues to decline, however, its depressing influence on per capita income for the region will continue to diminish.

Although nonagricultural participation income per worker in Region I has been close to the statewide average (except in 1966) it is somewhat surprising that an area growing as fast as western Montana is not above average in this respect.

Projections. We project that Region I's population and employment will continue to grow between 1968 and 1980, but less rapidly than they did during the 1960s. By 1980, according to the projections shown in table 5.2, the region's population will reach 171.1 thousand, 12.6 percent above its 1968 level. Our employment projection for Region I calls for 65,450 jobs in 1980, an increase of 15.8 percent from 1968.

Table 5.3 shows detailed civilian employment projections. Increases in manufacturing and mining, and in federal government jobs are expected to more than offset declining agriculture and railroad employment, causing total primary employment to rise by 830 jobs, or 4 percent.

These projections contemplate about 350 new jobs in copper mining in the Sanders County area. Obviously, this is a guess; there is no firm

TABLE 5.2

Resident Population and Total Civilian Employment
Region I, 1950, 1960, 1968 and Projected 1980

	Persons or Workers				Percentage Change		
	1950	1960	1968	Projected 1980	1950-1960	1960-1968	1968-1980
Resident population (July 1)	114,454	128,541	152,000	171,100	12.3	18.3	12.6
Total civilian employment (average monthly)	42,760	43,270	56,540	65,450	1.2	30.7	15.8

Sources: U.S. Department of Commerce, Office of Business Economics; Montana State Board of Health; Montana Economic Study; and Montana Employment Security Commission. Projections by Montana Economic Study.

TABLE 5.3

Civilian Employment
Region 1, 1968 and Projected 1980

	1968	Projected 1980	Change, 1968-1980 Number of Workers	Percent
Primary Employment				
Agriculture	3,910	2,860	-1,050	-26.9
Manufacturing and mining	12,040	13,290	+1,250	+10.4
Railroads	1,450	940	- 510	-35.2
Federal government	3,330	4,470	+1,140	+34.2
Total Primary Employment	20,730	21,560	+ 830	+ 4.0
Total Derivative Employment	35,810	43,890	+8,080	+22.6
TOTAL EMPLOYMENT	56,540	65,450	+8,910	+15.8

Sources: Montana Employment Security Commission, and Montana Economic Study. Projections by Montana Economic Study.

evidence at present that such a mining venture will be undertaken. As Chapter 4 explained, we expect the market for copper to remain good throughout most of the 1970s. On that basis, we also project new copper mining operations in both Region IV and Region V.

The projected increase in primary employment in Region I also reflects our expectation of further expansion of jobs in lumber and wood products (classified as manufacturing employment), but at a pace considerably slower than during the 1960s.

Derivative employment (nonrail transportation, communication and utilities; contract construction; wholesale and retail trade, services, finance insurance and real estate; and state and local government) is projected to increase by 8,080, or 22.6 percent between 1968 and 1980. Total employment, the sum of primary and derivative, is projected to increase by 15.8 percent, or 8,910 jobs.

If our projections are correct, Region I will continue to grow faster than any of the other regions of the state, in terms of both population and jobs.

Table 5.4 shows projections of 1980 personal income for Region 1. They anticipate total personal income, in 1958 dollars, of $541.0 million and per capita personal income of $3,164. Even though the region's per capita income is projected to rise faster than the statewide average, it will, according to the projection, still be 5 percent below the statewide average in that year.

Region II (North Central Montana)

Region II embraces 14 counties--Blaine, Cascade, Chouteau, Fergus, Glacier, Hill, Judith Basin, Liberty, Meagher, Petroleum, Phillips,

TABLE 5.4

Total Personal Income and Per Capita Personal Income
Region I and Montana, 1959, 1966, and Projected 1980
(1958 Dollars)

	Total Personal Income					Per Capita Personal Income				
	Millions of Dollars			Average Annual Percentage Rate of Change		Dollars			Average Annual Percentage Rate of Change	
			Projected					Projected		
	1959	1966	1980	1959-1966	1966-1980	1959	1966	1980	1959-1966	1966-1980
Region I	$ 234.3	$ 304.8	$ 541.0	3.8	4.2	$1852	$2131	$3164	2.0	2.9
Montana	1328	1682	2415	5.4	2.6	1985	2389	3331	2.7	2.4

Sources: U.S. Department of Commerce, Office of Business Economics: and Montana Economic Study. Projections by Montana Economic Study.

Note: Total personal income for regions does not add to state total for 1966 because of Commerce Department revisions in state data (but not regional data).

Pondera, Teton, and Toole. Great Falls is the region's largest city and major trade center. Havre and Lewistown also figure importantly in the region's trade.

Population in Region II, shown in table 5.5, grew from 141,800 in 1950 to 171,200 in 1960. But during the next 8 years it fell by 2,800, to 168,400 in 1968. Since 1960, population has fallen in every county of the region except Cascade.

Most of the land area in Region II is devoted to farming and ranching. Nonagricultural activity is centered in the Great Falls area. Between 1950 and 1968, government civilian employment--federal, state, and local combined--displaced agriculture as the region's major source of jobs.

In terms of total jobs, Region II fared better during the fifties than it did between 1960 and 1968. Total employment was 55,500 in 1950; by 1960, it had risen 4,300, to 59,800; between 1960 and 1968 it rose only 1,400, reaching 61,200 in the latter year (see figure 5.4).

Like the rest of the state, Region II experienced a continued decline in agricultural employment during the 1950s and 1960s. However, the percentage reduction was less severe than in most other regions. Farm employment dropped from 15,420 in 1950 to 12,150 in 1960 and then to 10,440 in 1968.

In the nonagricultural sector, aside from government, the major increase in employment was in the service industries (including finance, insurance, and real estate), where the number of jobs increased from 5,300 in 1950 to 9,800 in 1968, and accounted for about 16 percent of all jobs in 1968. The increase came mainly in the Great Falls area.

Manufacturing employment in Region II, 3,800 in 1950, rose by only 100 workers, to 3,900 workers in 1968. The Anaconda Company's copper and

TABLE 5.5

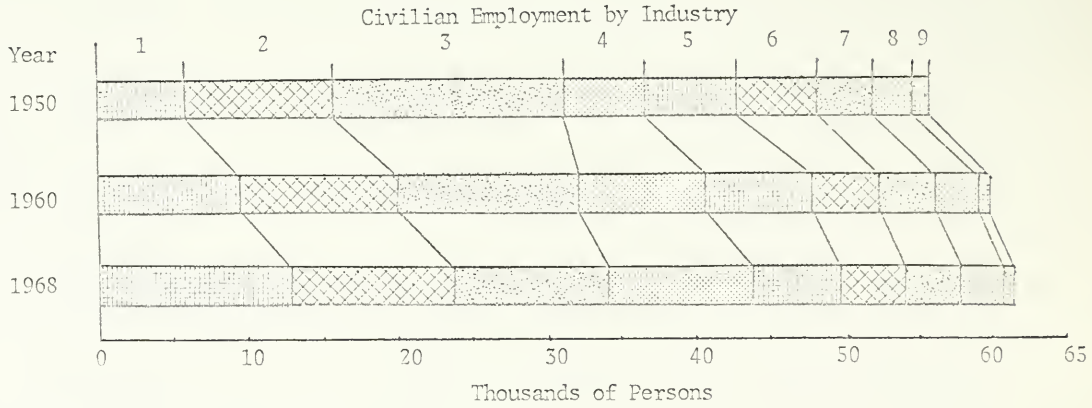
Resident Population and Total Civilian Employment
Region II, 1950, 1960, 1968 and Projected 1980

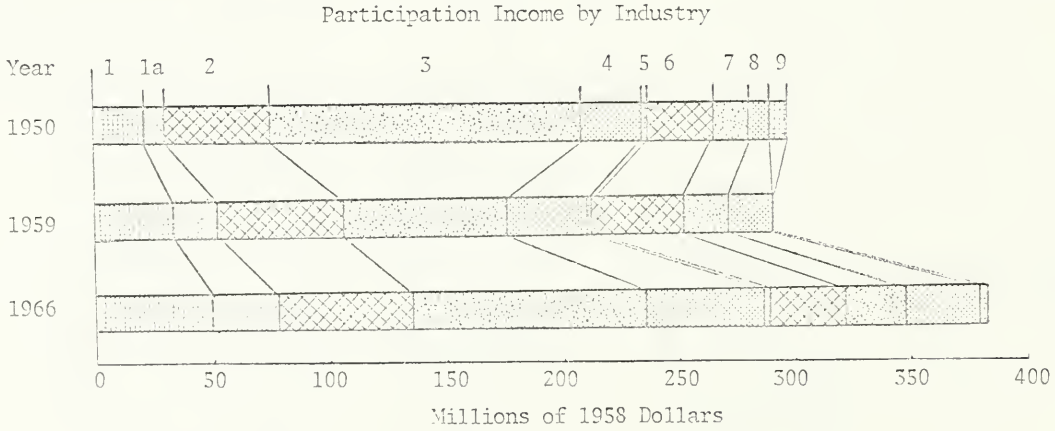
	Persons or Workers				Percentage Change		
	1950	1960	1968	Projected 1980	1950-1960	1960-1968	1968-1980
Resident population (July 1)	141,772	171,191	168,400	167,700	20.8	-1.6	-0.4
Total civilian employment (average monthly)	55,460	59,790	61,210	62,970	7.8	2.4	2.9

Sources: U. S. Department of Commerce, Office of Business Economics; Montana State Board of Health; Montana Economic Study; and Montana Employment Security Commission. Projections by Montana Economic Study.

Figure 5.4

Region II: Employment and Income





Legend

1. Government
1a. Federal military
2. Trade
3. Agriculture
4. Services
5. All other (see note)
6. Transportation and public utilities
7. Manufacturing
8. Construction
9. Mining

5.21

Sources: U.S. Department of Commerce; Montana Employment Security Commission; and Montana Economic Study.

Note: Employment data for agriculture include both self-employed and hired workers. "All other" employment consists of all self-employed workers outside agriculture and household workers. "All other" participation income includes agricultural services, forestry, and fisheries. Participation income by industry includes "other labor income."

zinc plants and the flour mills at Great Falls are the major manufacturing employers in Region II. Missile assembly, which is included in manufacturing employment statistics, is also important at times. In 1968, missile assembly accounted for nearly 10 percent of all manufacturing jobs, and the number of these jobs can be expected to increase at various times in the 1970s as new missile sites are opened in Region II.

The impact of Malmstrom Air Force Base, east of Great Falls, is not directly reflected in the employment data of figure 5.4. However, figure 5.4 does show that federal military income amounted to $28 million (in 1958 prices) during 1966--more than wages and salaries from manufacturing. Military employment at the base increased from 1,700 in 1950 to 4,187 in 1960 and then to over 5,000 in 1968. The increase in military personnel and their dependents probably accounts for a significant portion of the 1950-1960 increase in the population of Region II. Completion of the new Safeguard ballistic missile installations will probably add about 1,000 more to military employment in Region II, mainly in Pondera and Toole Counties.

A significant part of the growth of the service and trade sectors can be attributed to the spending of military personnel and their dependents. In addition, federal civilian employment at Malmstrom Air Force Base provides about 700 jobs, and construction activity there also adds significantly to local civilian payrolls.

Per capita personal income in Region II in 1950 was $2,388 in 1958 dollars, 22 percent above the state average (see table 5.6). It declined to $2,147 in 1959, reflecting the poor fortunes of agriculture, but that was still 8 percent above the state average. Between 1959 and 1966, it rebounded to $2,698, 13 percent above the state average for that year. In all three years, per capita personal income was higher in Region II than in any of the other five regions.

TABLE 5.6

Per Capita Personal Income and Civilian Participation Income Per Worker
Region II, 1950, 1959, and 1966
(1958 Dollars)

	Per Capita Personal Income		Agricultural Participation Income Per Worker		Civilian Nonagricultural Participation Income Per Worker	
	Dollars	Percentage of State Average	Dollars	Percentage of State Average	Dollars	Percentage of State Average
1950	$2388	122.0	$8730	146.8	$3810	99.5
1959	2147	108.2	5710	135.6	4200	95.9
1966	2698	112.9	9850	160.2	5070	100.6

Sources: U.S. Department of Commerce, Office of Business Economics; Montana Employment Security Commission; and Montana Economic Study.

Table 5.6 helps explain why per capita personal income is so high in Region II. Real participation income per civilian worker outside agriculture was close to the average for the entire state in all three years for which data are shown. But participation income per worker in agriculture, a whopping $8,730 (in 1958 dollars) in 1950, was 47 percent above the state average. It declined to $5,710 in 1960, but was still 36 percent above the state average, and then shot up to $9,850 in 1966, a full 60 percent higher than the average for the state.

Agricultural employment fell by nearly one-third, from 15,400 to 10,400, between 1950 and 1968. As a result, the influence of high participation incomes per agricultural worker is diminishing somewhat, and we expect this trend to continue during the 1970s.

Regions I and II provide an interesting contrast. Region I, the most dynamic area of the state, continues to have the lowest level of per capita income because of the drag of the agricultural sector. Region II, where employment growth has been less than robust, has the highest level of per capita income because of the boost from agriculture. Nonagricultural income per worker is near the state average in both regions, and the continued declining importance of agriculture should cause per capita incomes of both regions to move closer to the state average with the passage of time. But Region II's will approach the average from above and Region I's from below.

The prosperity of Region II's agricultural sector in the next decade will depend heavily on the fortunes of the large wheat operations in the triangle area north of Great Falls. This area boasts many of the state's most prosperous farmers. Their fate will depend, among other things, on the course of federal government agricultural support policies.

Projections. As table 5.5 indicated, our projections for Region II anticipate a small rise in employment and a small decline in population between 1968 and 1980. Total employment in 1980 is projected at 62,970, up 2.9 percent from 1968. Total population is projected at 167.7 thousand down 0.4 percent from its 1968 level. This represents a slower annual rate of decline in population than occurred there during the 1960s.

Table 5.7 shows detailed employment projections. Primary employment is projected to decline to 18,110 in 1980, 7.9 percent below its 1968 level. Both agricultural and railroad jobs are expected to decline; the loss of jobs will be only partially offset by increasing employment in manufacturing and mining and in the federal government sector.

Derivative employment, on the other hand, is expected to increase by 3,310 jobs, or 8.0 percent, over the twelve-year period ending in 1980. As a result, total employment is projected to increase by 1,760 jobs, or 2.9 percent, from 1968 to 1980.

Total personal income, shown in table 5.8, is projected to increase at an average annual rate of 1.6 percent (in 1958 dollars). Per capita personal income is projected to rise at an annual average rate of 1.8 percent, reaching $3,481 in 1980. Despite the fact that per capita income is projected to rise less rapidly than the statewide average, it will, according to the projection, be 4.5 percent above the state's average in 1980. This slower rise in Region II reflects our expectation that real participation income per agricultural worker will not be increasing during the 1970s.

Region III (Northeastern Montana)

Region III includes Daniels, Dawson, McCone, Richland, Roosevelt, Sheridan, Valley, and Wibaux Counties. In 1950, its population was 56,200. Population grew to 66,900 in 1960, but then declined to 60,500 in 1968.

TABLE 5.7

Civilian Employment
Region 11, 1968 and Projected 1980

	1968	Projected 1980	Change, 1968-1980 Number of Workers	Percent
Primary Employment				
Agriculture	10,440	8,110	-2,330	-22.3
Manufacturing and mining	4,640	5,050	+ 410	+ 8.8
Railroads	1,710	1,100	- 610	-35.7
Federal government	2,870	3,850	+ 980	+34.1
Total Primary Employment	19,660	18,110	-1,550	- 7.9
Total Derivative Employment	41,550	44,860	+3,310	+ 8.0
TOTAL EMPLOYMENT	61,210	62,970	+1,760	+ 2.9

Sources: Montana Employment Security Commission, and Montana Economic Study. Projections by Montana Economic Study.

TABLE 5.8

Total Personal Income and Per Capita Personal Income
Region II and Montana, 1959, 1966, and Projected 1980
(1958 Dollars)

	Total Personal Income					Per Capita Personal Income				
	Millions of Dollars			Average Annual Percentage Rate of Change		Dollars			Average Annual Percentage Rate of Change	
			Projected					Projected		
	1959	1966	1980	1959-1966	1966-1980	1959	1966	1980	1959-1966	1966-1980
Region II	$ 560.0	$ 467.6	$ 584.0	3.8	1.6	$2147	$2698	$3481	3.3	1.8
Montana	1328	1682	2415	3.4	2.6	1985	2389	3331	2.7	2.4

Sources: U.S. Department of Commerce, Office of Business Economics; and Montana Economic Study. Projections by Montana Economic Study.

Note: Total personal income for regions does not add to state total for 1966 because of Commerce Department revisions in state data (but not regional data).

Glasgow and Glendive are the largest cities and trade centers of the region. The nearest large urban areas are Billings; Bismark, North Dakota; and Regina, Saskatchewan.

Economic events in Region III during the last two decades were heavily influenced by the construction and manning of Glasgow Air Force Base during the late 1950s and early 1960s, and its closing in 1968. The increase in population between 1950 and 1960 and its later decline were both concentrated in Valley County.

The influence of the Glasgow base is also reflected in the civilian employment statistics shown in figure 5.5. In 1950, total employment in Region III averaged 20,700. In 1960, it was slightly higher--20,900. By 1968, it averaged 20,300. Meanwhile agricultural employment decreased from 8,600 in 1950 to 6,100 in 1960, and to 5,100 in 1968. Obviously, the offsetting increases of employment in trade, service, and government, which depended partly on the activity at the Air Force base, were sufficient to keep total employment almost constant.

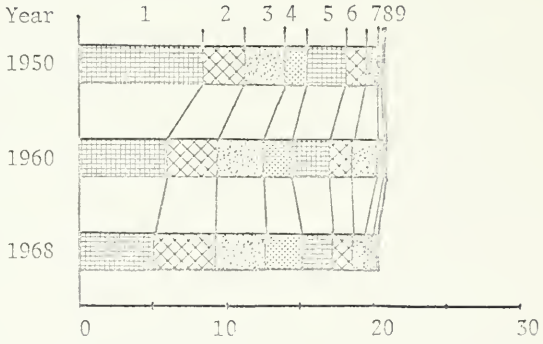
It seems reasonable to suppose that the impact of the closing of the base is not fully reflected in the 1968 civilian employment figures. Even though activities of the AVCO corporation on the site of the former Air Force installation have taken up some of the slack, we expect that data for 1969 and 1970 will show additional declines in the number of jobs in the service industries in Valley County.

The economic impact of the base is perhaps seen most clearly in the chart showing participation incomes in figure 5.5. In 1959, federal military participation income amounted to $4.5 million (in 1958 dollars), less than 6 percent of total participation income. By 1966, this figure was $17.7 million, close to 14 percent of the total. Aside from agriculture, the pay of military personnel at Glasgow Air Force Base was the largest

Figure 5.5

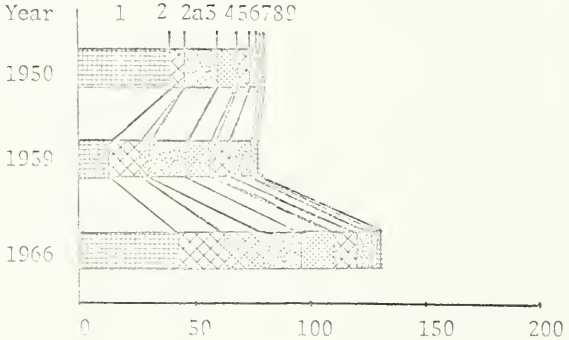
Region III: Employment and Income

Civilian Employment by Industry



Thousands of Workers

Participation Income by Industry



Millions of 1958 Dollars

Legend

1. Agriculture
2. Government
2a. Federal military
3. Trade
4. Services
5. All other (see note)
6. Transportation and public utilities
7. Construction
8. Mining
9. Manufacturing

Sources: U.S. Department of Commerce; Montana Employment Security Commission; and Montana Economic Study.

Notes: Employment data for agriculture include both self-employed and hired workers. "All other" employment consists of all self-employed workers outside agriculture and household workers. "All other" participation income includes agricultural services, forestry, and fisheries. Participation income by industry includes "other labor income."

single source of income in Region III. We do not have figures for later years that would permit direct measurement of the effect of the closure.

In future years, the economy of Region III will no doubt continue to depend primarily on agriculture. In 1968, even after it had declined by over 3,500 in the previous 18 years, to a level of 5,100, agricultural employment still constituted 25 percent of total civilian employment. Manufacturing provides only a few hundred jobs in Region III, mostly in food processing and, recently, in the AVCO operation at the old site of Glasgow Air Force Base. The Williston Basin oil boom increased mining employment (oil extraction is classified as mining) from only a handful of workers in 1950 to 475 in 1968--a large increase, but not enough to have a really significant impact.

Region III's total participation income (including military payrolls), measured in 1958 dollars, shown in figure 5.5, declined from $80.3 million in 1950 to $77.4 million in 1959, but 1959 was an unusually bad year for agriculture. In 1966, total participation income amounted to over $130 million in 1958 dollars.

Per capita personal income in 1958 dollars, shown in table 5.9, was $1,679 in 1950, 14 percent below the statewide average. It fell to $1,523 in 1959, 23 percent below the state average, and rebounded in 1966 to $2,185, 8 percent below the state average for that year.

As table 5.9 indicates, the large variations in per capita income trace mostly to agriculture. Participation income per worker in agriculture, in 1958 dollars, fell from $4,530 in 1950 to $2,280 in 1959, 46 percent below the statewide average. But it soared to $8,830 in 1966, nearly 44 percent above the average for the state.

However, table 5.9 also shows that nonagricultural civilian participation income per worker has been rising relative to the statewide average. It

TABLE 5.9

Per Capita Personal Income and Civilian Participation Income Per Worker
Region III, 1950, 1959, and 1966
(1958 Dollars)

	Per Capita Personal Income		Agricultural Participation Income Per Worker		Civilian Nonagricultural Participation Income Per Worker	
	Dollars	Percentage of State Average	Dollars	Percentage of State Average	Dollars	Percentage of State Average
1950	$1679	85.8	$4530	76.2	$3400	88.8
1959	1523	76.7	2280	54.1	3970	90.7
1966	2185	91.5	8830	143.6	4640	92.1

Sources: U.S. Department of Commerce, Office of Business Economics; Montana Employment Security Commission; and Montana Economic Study.

was about 11 percent below the average in 1950 and about 8 percent below it in 1966. This relative improvement occurred despite the fact that the trade and service industries, whose importance has increased even faster in Region III than in the state as a whole, pay relatively low incomes.

Projections. We project substantial declines in both population and employment in Region III between 1968 and 1980. Over the 12 years ending in 1980, as table 5.10 indicates, population is expected to fall 14.2 percent, to 51.9 thousand, and total employment is projected to fall 8.0 percent, to 18,660.

Declining jobs in agriculture dominate the projected employment picture, but the projected reduction of railroad employment is also substantial (see table 5.11). As in every other region, both manufacturing and mining and federal civilian employment are expected to increase. But the increases are not nearly enough to offset the projected declines in agricultural and railroad jobs. Total primary employment is therefore projected to fall by 800 jobs, or 10.8 percent.

Total derivative employment will also fall, by 6.4 percent, according to these projections. This reflects the combined impact of the declining population and delayed effects of the closing of Glasgow Air Force Base.

According to the projections shown in table 5.12, the total personal income of Region III, measured in 1958 dollars, will decline from $157.4 million in 1966 to $150 million in 1980. Per capita personal income for 1980 is projected at $2,898, 13 percent below the projected statewide average. This projection reflects the view that participation income per worker in agriculture, Region III's main industry, will not rise during the 1970s.

TABLE 5.10

Resident Population and Total Civilian Employment
Region III, 1950, 1960, 1968 and Projected 1980

	Persons or Workers				Percentage Change		
	1950	1960	1968	Projected 1980	1950-1960	1960-1968	1968-1980
Resident population (July 1)	56,176	66,861	60,500	51,900	19.0	-9.5	-14.2
Total civilian employment (average monthly)	20,660	20,900	20,280	18,660	1.2	-3.0	- 8.0

Sources: U.S. Department of Commerce, Office of Business Economics; Montana State Board of Health; Montana Economic Study; and Montana Employment Security Commission. Projections by Montana Economic Study.

TABLE 5.11

Civilian Employment
Region III, 1968 and Projected 1980

	1968	Projected 1980	Change, 1968-1980 Number of Workers	Percent
Primary Employment				
Agriculture	5,060	3,740	-1,320	-26.1
Manufacturing and mining	810	1,200	+ 390	+48.1
Railroads	520	310	- 210	-40.4
Federal government	1,000	1,340	+ 340	+34.0
Total Primary Employment	7,390	6,590	- 800	-10.8
Total Derivative Employment	12,890	12,070	- 820	- 6.4
TOTAL EMPLOYMENT	20,280	18,660	-1,620	- 8.0

Sources: Montana Employment Security Commission, and Montana Economic Study. Projections by Montana Economic Study.

TABLE 5.12

Total Personal Income and Per Capita Personal Income
Region III and Montana, 1959, 1966, and Projected 1980
(1958 Dollars)

	Total Personal Income					Per Capita Personal Income				
	Millions of Dollars			Average Annual Percentage Rate of Change		Dollars			Average Annual Percentage Rate of Change	
			Projected					Projected		
	1959	1966	1980	1959-1966	1966-1980	1959	1966	1980	1959-1966	1966-1980
Region III	$ 99.0	$ 157.4	$ 150.0	6.9	-0.3	$1523	$2185	$2898	5.3	2.0
Montana	1328	1682	2415	3.4	2.6	1985	2589	3331	2.7	2.4

Sources: U.S. Department of Commerce, Office of Business Economics; and Montana Economic Study. Projections by Montana Economic Study.

Note: Total personal income for regions does not add to state total for 1966 because of Commerce Department revisions in state data (but not regional data).

Region IV (Southwestern Montana)

Region IV includes Beaverhead, Broadwater, Deer Lodge, Gallatin, Jefferson, Lewis and Clark, Madison, Park, Powell, and Silver Bow Counties. Its primary cities and trade centers are Butte, Helena, and Bozeman. In 1950, the population of the region was 149,300. By 1960 it had increased to 158,800; it then inched up to 163,000 in 1968.

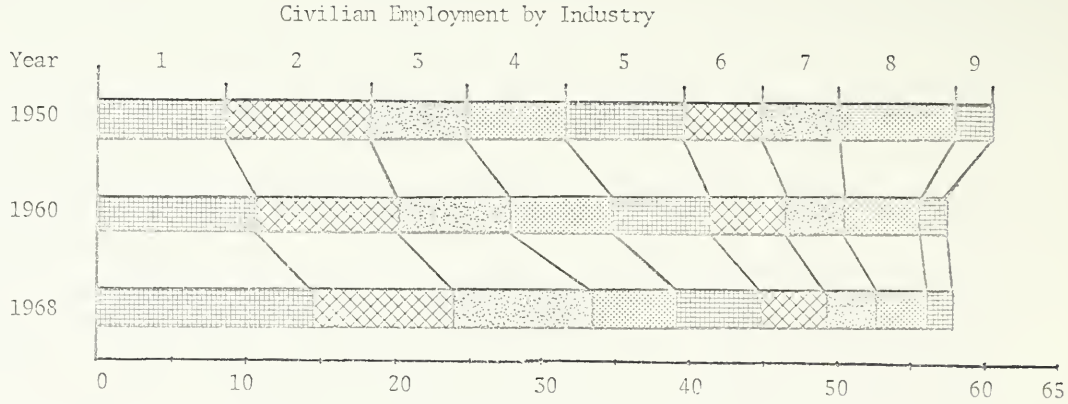
Region IV is best known for the Butte mines. But it also contains some of Montana's largest ranches, in Beaverhead County. (The region also has many very small agricultural establishments--the range in size and income of farms is probably as great or greater here than anywhere else in the state.) Tourism is important to Region IV, which embraces the two Montana entrances to Yellowstone Park and the restored mining camp at Virginia City, as well as excellent hunting and fishing areas.

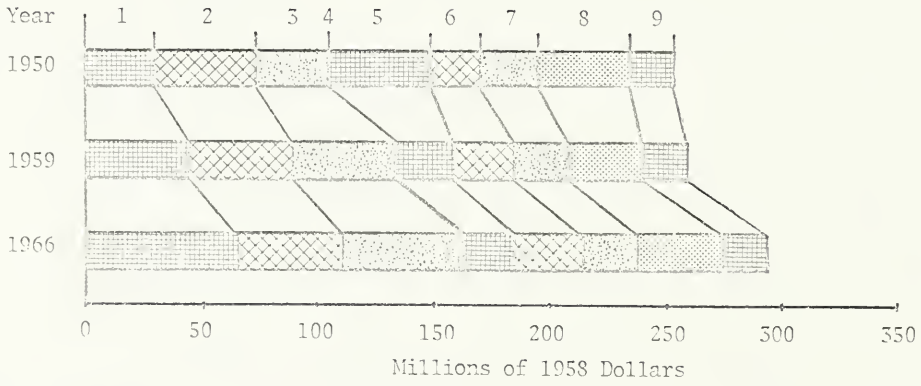
The major economic influence in Region IV since 1950 has been the decline of employment in mining at Butte. It is difficult to pinpoint the contrary trends occurring elsewhere in the region, because the use of less aggregated data (such as county figures) is circumscribed by the necessity of not revealing employment information for individual companies. Consequently, the discussion centers on data for the region as a whole.

As figure 5.6 shows, mining in Region IV boasted almost 8,000 workers in 1950, and the industry accounted for over 13 percent of the area's total employment. Mining employment dropped to 5,000 workers in 1960, and to 3,200 in 1968. In the latter year, it accounted for only 5.6 percent of the total. But both the 1960 and 1968 figures reflect the influence of strikes, which held down mining employment for part of the year. In 1969, mining employment in Region IV bounced back sharply.

Figure 5.6

Region IV: Employment and Income





Legend

1. Government (including federal military)
2. Trade
3. Services
4. All other (see note)
5. Agriculture
6. Manufacturing
7. Transportation and public utilities
8. Mining
9. Construction

Source: U.S. Department of Commerce; Montana Employment Security Commission; and Montana Economic Study.

Note: Employment data for agriculture include both self-employed and hired workers. "All other" employment consists of all self-employed workers outside agriculture and household workers. "All other" participation income includes agricultural services, forestry, and fisheries. Participation income by industry includes "other labor income."

The income estimates shown in figure 5.6 suggest that the employment numbers may give a misleading impression of the impact of mining's decline on the region's economy. Participation income from mining, in 1958 dollars, declined only from $40.7 million in 1950 to $37.6 million in 1966, or from 16 percent to 12.7 percent of total participation income. The high and rising wages of the remaining miners helped to counteract the effect of their decreased numbers.

Manufacturing employment in Region IV declined slightly, from 5,400 in 1950 to 5,200 in 1960. This sector is dominated by the copper and lead reduction facilities at Anaconda, Helena, and Butte, and the 1968 figure is influenced by the copper strike of 1967-1968. By 1968, however, activity had become diversified enough so that over two-thirds of manufacturing employment was in categories other than the primary metals category--principally lumber and wood products, food and kindred products, and chemicals (dominated by the Stauffer Chemical Company plant near Butte).

Agricultural employment in Region IV has declined steadily since 1950, when it averaged 7,880 workers and accounted for 13.0 percent of total jobs. By 1960, the number of agricultural workers had fallen to 6,440 and by 1968 to 5,730, only 9.9 percent of total employment.

Government employment increased from 8,510 in 1950 to 14,650 in 1968, making it the region's largest single source of jobs and income in the latter year. Region IV contains a large share of Montana's state institutions. Not only is the state capital in Helena, but three units of the university system (in Bozeman, Butte, and Dillon), three state hospitals (at Warm Springs, Galen, and Boulder), and the state prison and the state highway department (in Deer Lodge), all add to government payrolls. It is not surprising, then, that state and local government employment accounted

for 20.8 percent of all jobs in Region IV in 1968, compared with 16.1 percent for the state as a whole. Including federal jobs, over one-fourth of Region IV's total employment in 1968 was accounted for by government.

Region IV's per capita income, in 1958 dollars, was $1,979 in 1950, 1.1 percent above the state average, as table 5.13 indicates. It rose to $2,064 in 1959, 4 percent above the state average. By 1966, it had reached $2,262, but was about 5 percent below the average for the state as a whole.

Agriculture's share of total participation income declined sharply between 1950 and 1959. Participation income per worker in agriculture, shown in table 5.13, was only $3,930 in 1968 (in 1958 dollars), less than 64 percent of the average for the state. It had been $5,570 in 1950 and $4,050 in 1959.

However, participation income per worker in nonagricultural pursuits grew from $3,970 in 1950 to $4,510 in 1959, and then to $5,280 in 1966, and has consistently been 3-to-5 percent higher than the state average.

Thus, the decline in this region's per capita income relative to the state average has been due primarily to the persistent decline of agricultural income.

Projections. Projections of population and total civilian employment for Region IV are shown in table 5.14. They indicate that population will increase to 174.7 thousand in 1980, up 7.2 percent from 1968. Civilian employment is projected to rise 11.9 percent over the same period, reaching 64,900 in 1980.

The detailed employment projections in table 5.15 indicate that employment in manufacturing and mining is expected to rise by 450 workers, or 5.8 percent, between 1968 and 1980. This reversal of the trend that

TABLE 5.13

Per Capita Personal Income and Civilian Participation Income Per Worker
Region IV, 1950, 1959, and 1966
(1958 Dollars)

	Per Capita Personal Income		Agricultural Participation Income Per Worker		Civilian Nonagricultural Participation Income Per Worker	
	Dollars	Percentage of State Average	Dollars	Percentage of State Average	Dollars	Percentage of State Average
1950	$1979	101.1	$5570	93.7	$3970	103.7
1959	2064	104.0	4050	96.2	4510	103.0
1966	2262	94.7	3930	63.9	5280	104.8

Sources: U.S. Department of Commerce, Office of Business Economics; Montana Employment Security Commission; and Montana Economic Study.

TABLE 5.14

Resident Population and Total Civilian Employment
Region IV, 1950, 1960, 1968 and Projected 1980

	Persons or Workers				Percentage Change		
	1950	1960	1968	Projected 1980	1950-1960	1960-1968	1968-1980
Resident population (July 1)	149,322	158,821	163,000	174,700	6.4	2.6	7.2
Total civilian employment (average monthly)	60,520	57,540	58,010	64,900	-4.9	0.8	11.9

Sources: U.S. Department of Commerce, Office of Business Economics; Montana State Board of Health; Montana Economic Study; and Montana Employment Security Commission. Projections by Montana Economic Study.

TABLE 5.15

Civilian Employment
Region IV, 1968 and Projected 1980

	1968	Projected 1980	Change, 1968-1980 Number of Workers	Percent
Primary Employment				
Agriculture	5,730	4,630	-1,100	-19.2
Manufacturing and mining	7,780	8,230	+ 450	+ 5.8
Railroads	1,760	1,110	- 650	-36.9
Federal government	2,610	3,500	+ 890	+34.1
Total Primary Employment	17,880	17,470	- 410	- 2.3
Total Derivative Employment	40,130	47,430	+7,300	+18.2
TOTAL EMPLOYMENT	58,010	64,900	+6,890	+11.9

Sources: Montana Employment Security Commission, and Montana Economic Study. Projections by Montana Economic Study.

has been under way since 1950 anticipates new copper mining jobs, resulting both from increased operations at Butte and from an expected new operation, near Lincoln in Lewis and Clark County. The latter, of course, is only a guess. No firm plans for bringing this area into production have been announced, and there is no assurance that any will be.

The most important source of projected new primary employment in Region IV, however, is in federal government jobs, which are expected to increase by nearly 900. Both agricultural and railroad employment, on the other hand, are expected to decline, by 1,100 and 650 jobs respectively. As a result, total primary employment is expected to decline by 410 jobs.

Derivative employment, on the other hand, is projected to rise by 18.2 percent, or 7,300 jobs. In part, this reflects an assumption that employment in the trade and service industries in and around Butte will increase more rapidly than the statewide average.

Table 5.16 shows that total personal income (in 1958 dollars) is projected to reach $605 million in 1980. Per capita income for 1980 is projected at $3,464, 4 percent higher than the state average. This high per capita income figure reflects the heavy projected employment in high-paying jobs in mining. Should the growth of mining employment which we anticipate not materialize, not only the number of jobs, but also the average incomes of Region IV's residents, could be expected to be lower than the projected figure for 1980.

TABLE 5.16

Total Personal Income and Per Capita Personal Income
Region IV and Montana, 1959, 1966, and Projected 1980
(1958 Dollars)

	Total Personal Income					Per Capita Personal Income				
	Millions of Dollars			Average Annual Percentage Rate of Change		Dollars			Average Annual Percentage Rate of Change	
			Projected					Projected		
	1959	1966	1980	1959-1966	1966-1980	1959	1966	1980	1959-1966	1966-1980
Region IV	$ 323.6	$ 370.1	$ 605.0	1.9	3.6	$2064	$2262	$3464	1.3	3.1
Montana	1328	1682	2415	3.4	2.6	1985	2389	3331	2.7	2.4

Sources: U.S. Department of Commerce, Office of Business Economics; and Montana Economic Study. Projections by Montana Economic Study.

Note: Total personal income for regions does not add to state total for 1966 because of Commerce Department revisions in state data (but not regional data).

Region V (South Central Montana)

Region V includes Big Horn, Carbon, Golden Valley, Musselshell, Stillwater, Sweet Grass, Treasure, Wheatland, and Yellowstone Counties. Its population increased from 96,300 in 1950 to 116,600 in 1960, and then declined slightly, to 116,000, in 1968.

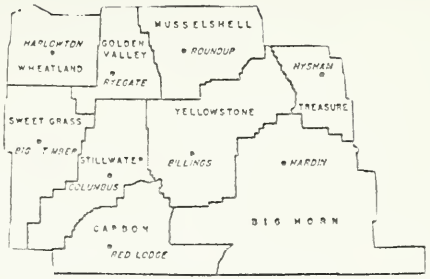
Billings is the region's major population, trade, and service center. Activity in and around that city has dominated economic developments in Region V during the last two decades. The population of Yellowstone County, which includes the Billings-Laurel area, increased from 55,900 in 1950 to 81,400 in 1968. Since 1960, population has declined in all of the other counties in Region V except Big Horn County; they are, for the most part, agricultural, and agriculture's share of employment in the region fell from 23.8 percent in 1950 to only 11.6 percent in 1968.

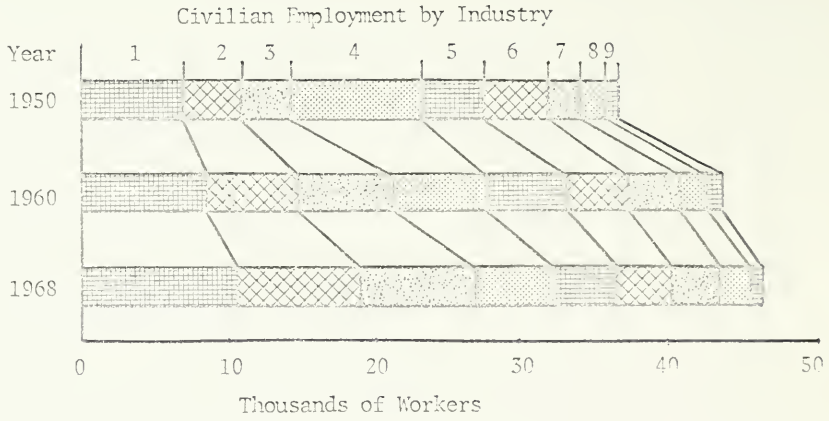
The 1950-1968 period saw Billings emerge increasingly as a major commercial wholesaling center, serving a trade area that extends into Regions III and VI and far into Wyoming. As figure 5.7 shows, Region V's employment in the trade and service industries (including finance, insurance, and real estate) increased from 10,300 in 1950 to 18,400 in 1968. By the latter year, these industries accounted for 40 percent of employment in Region V, compared to a 33 percent share in the state as a whole. This increase in employment appears to have been at least partly the result of the aggressive development policies that played a role in leading several national firms to locate regional headquarters in Billings.

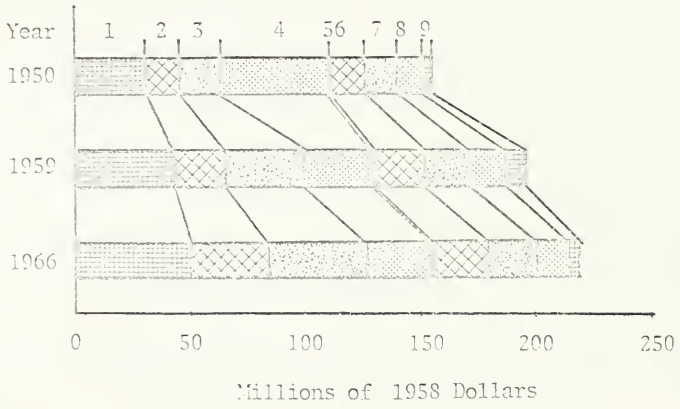
Furthermore, the location of two major oil refineries in Billings and one in Laurel provided increased manufacturing jobs. Overall, manufacturing employment increased from 2,200 in 1950 to 3,400 in 1960, where it has remained through 1968. In that year petroleum refining and food processing

Figure 5.7

Region V: Employment and Income







Legend

1. Trade
2. Government (including federal military)
3. Services
4. Agriculture
5. All other (see note)
6. Transportation and public utilities
7. Manufacturing
8. Construction
9. Mining

Sources: U.S. Department of Commerce; Montana Employment Security Commission; and "Montana Economic Study.

Note: "Employment" data for agriculture include both self-employed and hired workers. "All other" employment consists of all self-employed workers outside agriculture and household workers. "All other" participation income includes agricultural services, forestry, and fisheries. Participation income by industry includes "other labor income."

accounted for over half of all manufacturing jobs in Region V. Total participation income, like employment, grew substantially between 1950 and 1968.

Per capita personal income, measured in 1958 dollars, was $1,879 in 1950, 4 percent below the state average (see table 5.17). By 1959 it had increased to $2,138, 8 percent above the state average. In 1966 it was $2,385, about the same as the average for the state as a whole.

Table 5.17 also shows that participation income per worker outside agriculture was about the same as the state average in both 1950 and 1959, but that it fell to only 93 percent of the average in 1966. We have not found a complete explanation for this decline. In part, it reflects the very rapid expansion of jobs in the trade and service industries, which generally pay relatively low wages.

The figures in table 5.17 suggest that the relatively high per capita income in Region V in 1959 was partly due to the relatively small decline of agricultural participation income. On the other hand, per capita income did not rise as fast as the state average between 1959 and 1966.

Projections. We project an 8 percent increase in Region V's population from 1968 to 1980, with the total reaching 125.3 thousand in the latter year, as shown in table 5.18. Employment is expected to increase 15.0 percent, to 53,160 in 1980. This is nearly as fast a growth rate of jobs as is projected for Region 1 (western Montana).

As table 5.19 indicates, primary employment is expected to rise, but by a bare 100 jobs--on the projection of enough increases in manufacturing and mining and federal government jobs to more than offset projected declines in agricultural and railroad employment.

TABLE 5.17

Per Capita Personal Income and Civilian Participation Income Per Worker
Region V, 1950, 1959, and 1966
(1958 Dollars)

	Per Capita Personal Income		Agricultural Participation Income Per Worker		Civilian Nonagricultural Participation Income Per Worker	
	Dollars	Percentage of State Average	Dollars	Percentage of State Average	Dollars	Percentage of State Average
1950	$1879	96.0	$5360	90.1	$3840	100.3
1959	2138	107.7	4560	108.3	4410	100.7
1966	2385	99.8	5230	85.0	4700	93.3

Sources: U.S. Department of Commerce, Office of Business Economics; Montana Employment Security Commission; and Montana Economic Study.

TABLE 5.18

Resident Population and Total Civilian Employment
Region V, 1950, 1960, 1968 and Projected 1980

	Persons or Workers				Percentage Change		
	1950	1960	1968	Projected 1980	1950-1960	1960-1968	1968-1980
Resident population (July 1)	96,311	116,618	116,000	125,300	21.1	-0.5	8.0
Total civilian employment (average monthly)	36,600	43,640	46,210	53,160	19.2	5.9	15.0

Sources: U.S. Department of Commerce, Office of Business Economics; Montana State Board of Health; Montana Economic Study; and Montana Employment Security Commission. Projections by Montana Economic Study.

TABLE 5.19

Civilian Employment
Region V, 1968 and Projected 1980

	1968	Projected 1980	Change, 1968-1980 Number of Workers	Percent
Primary Employment				
Agriculture	5,380	4,160	-1,220	-22.7
Manufacturing and mining	4,040	5,100	+1,060	+26.2
Railroads	1,190	790	- 400	-33.6
Federal government	1,940	2,600	+ 660	+34.0
Total Primary Employment	12,550	12,650	+ 100	+ 0.8
Total Derivative Employment	33,660	40,510	+6,850	+20.4
TOTAL EMPLOYMENT	46,210	53,160	+6,950	+15.0

Sources: Montana Employment Security Commission, and Montana Economic Study. Projections by Montana Economic Study.

Derivative employment is projected to increase by 6,850, or 20.4 percent, between 1968 and 1980. In part, this projection represents a view that Billings will continue to grow rapidly as a trade and service center for an area extending far beyond the region's boundaries. In a sense, part of the growth of what is labeled derivative employment really belongs in the primary category, since it represents workers whose services are exported to customers outside the region.

Region V's total personal income for 1980, in 1958 dollars, is projected at $432.0 million (see table 5.20). Per capita personal income, also in 1958 dollars, is projected at $3,448 for 1980, 3.5 percent above the statewide average.

Region VI (Southeastern Montana)

Region VI consists of Carter, Custer, Fallon, Garfield, Powder River, Prairie, and Rosebud Counties. In 1950, its population was 32,900, and it has not changed materially since then--32,700 in 1960 and 33,100 in 1968. Miles City is the largest community and trade center in the region.

Agriculture is the most important industry in Region VI. In recent years, however, government has been closing in on agriculture's position, and oil rigs have sprouted.

Total employment in Region VI declined from 12,500 in 1950 to 11,700 in 1960. But by 1968, as figure 5.8 indicates, it had risen back to 12,300. Employment in agriculture decreased steadily, from 4,810 in 1950 to 3,720 in 1960, and to 3,200 in 1968. Counterbalancing increases occurred throughout the nonagricultural sector, with government and, most recently, mining (oil extraction, for the most part) providing the greatest increases

TABLE 5.20

Total Personal Income and Per Capita Personal Income
Region V and Montana, 1959, 1966, and Projected 1980
(1958 Dollars)

	Total Personal Income					Per Capita Personal Income				
	Millions of Dollars			Average Annual Percentage Rate of Change		Dollars			Average Annual Percentage Rate of Change	
			Projected					Projected		
	1959	1966	1980	1959-1966	1966-1980	1959	1966	1980	1959-1966	1966-1980
Region V	$ 243.3	$ 275.2	$ 432.0	1.8	3.3	$2138	$2385	$3448	1.6	2.7
Montana	1528	1682	2415	3.4	2.6	1985	2389	3331	2.7	2.4

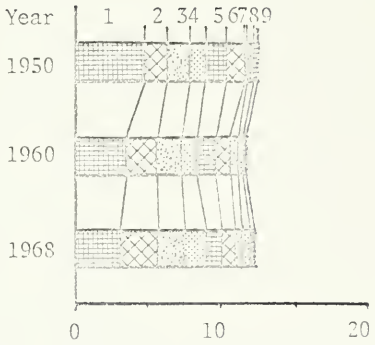
Sources: U.S. Department of Commerce, Office of Business Economics; and Montana Economic Study. Projections by Montana Economic Study.

Note: Total personal income for regions does not add to state total for 1966 because of Commerce Department revisions in state data (but not regional data).

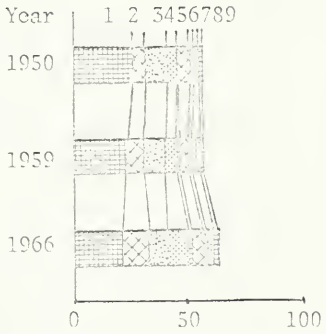
Figure 5.8

Region VI: Employment and Income

Civilian Employment by Industry



Participation Income by Industry



Legend

1. Agriculture
2. Government (including federal military)
3. Trade
4. Services
5. All other (see note)
6. Transportation and public utilities
7. Mining
8. Construction
9. Manufacturing

[illegible] Department of Commerce; Montana Employment Security Commission; and Montana Economic Study.

Note: Employment data for agriculture include both self-employed and hired workers. "All other" employment consists of all self-employed workers outside agriculture and household workers. "All other" participation income includes agricultural services, forestry, and fisheries. Participation income by industry includes "other labor income."

in jobs. Manufacturing employment more than doubled between 1950 and 1968--from 139 to 305. Most of this increase occurred in the food and kindred products industry.

By 1968, agriculture still accounted for 26 percent of total employment, and was the major source of the region's income.

Exploration and drilling for oil in the Bell Creek area in Powder River County began in earnest during 1966; oil was discovered in 1967. Mining employment rose from 240 workers in 1960 to 590 workers in 1968. This stimulated employment in the trade and service sectors, particularly in the Miles City area, the base of operations for a number of oil companies. But crude oil is shipped out for refining, and there may well be a net decrease in employment as drilling and exploration diminish. In any event, the population of every county in the region except Powder River County has fallen since 1960.

Between 1950 and 1968, real per capita income grew very slowly in Region VI. As table 5.21 indicates, 1950 per capita income was $1,921 (in 1958 dollars), 2 percent below the average for Montana. By 1959 it had dropped to $1,909, and was 4 percent below the state average in that year. It rose to $2,213 in 1966, but was a full 7 percent below the state average for that year.

Table 5.21 indicates that the lagging growth of per capita real income was caused mainly by the fact that participation income per civilian worker outside agriculture declined from 95 percent of the state average in 1950 to 91 percent in 1959, where it remained in 1966. The 1966 figure probably fails to reflect fully the impact of the oil boom, however.

Unlike most of the state, Region VI's agricultural sector had a relatively good year in 1959. As a result, participation income per

TABLE 5.21

Per Capita Personal Income and Civilian Participation Income Per Worker
Region VI, 1950, 1959, and 1966
(1958 Dollars)

	Per Capita Personal Income		Agricultural Participation Income Per Worker		Civilian Nonagricultural Participation Income Per Worker	
	Dollars	Percentage of State Average	Dollars	Percentage of State Average	Dollars	Percentage of State Average
1950	$1921	98.2	$5530	93.0	$3620	94.5
1959	1909	96.2	6190	147.0	3990	91.1
1966	2213	92.6	6570	106.8	4610	91.5

Sources: U.S. Department of Commerce, Office of Business Economics; Montana Employment Security Commission; and Montana Economic Study.

worker in agriculture was 47 percent above the statewide average. In 1950, it had been 7 percent below the state average. And in 1966, it was only 7 percent above the average. Nonetheless, the improvement of the region's agriculture relative to the rest of the state since 1950 has served to limit the decline of per capita income relative to the state average.

Projections. Table 5.22 indicates a projected 1.3 thousand increase in the population of Region VI between 1968 and 1980. This would bring the total number of residents to 34.4 thousand in 1980. The projections anticipate a 7.7 percent increase in employment, to 13,220 jobs in 1980.

The details of the employment increase are shown in table 5.23. The number of primary jobs is projected to decline by 140 between 1968 and 1980, despite a projected growth of 500 jobs in manufacturing and mining. The latter projection reflects mostly a growth of employment in the oil industry jobs and new jobs in strip-mining of coal in the Colstrip area. Both agricultural and railroad employment are expected to continue to decline, as they did from 1950 to 1968. Federal government jobs, on the other hand, are projected to continue increasing.

The number of derivative jobs is projected to increase by 1,080, both as a result of expanding population and of the projected continued increase in the ratio of derivative employment to population.

Table 5.24 shows that total personal income in 1958 dollars is projected at $103 million for 1980, and that per capita personal income, also in 1958 dollars, is projected to be $2,998, 90 percent of the statewide average for 1980.

TABLE 5.22

Resident Population and Total Civilian Employment
Region VI, 1950, 1960, 1968 and Projected 1980

	Persons or Workers				Percentage Change		
	1950	1960	1968	Projected 1980	1950-1960	1960-1968	1968-1980
Resident population (July 1)	32,931	32,688	33,100	34,400	-0.7	1.3	3.9
Total civilian employment (average monthly)	12,490	11,740	12,280	13,220	-6.0	4.6	7.7

Sources: U.S. Department of Commerce, Office of Business Economics; Montana State Board of Health; Montana Economic Study; and Montana Employment Security Commission. Projections by Montana Economic Study.

TABLE 5.23

Civilian Employment
Region VI, 1968 and Projected 1980

	1968	Projected 1980	Change, 1968-1980 Number of Workers	Percent
Primary Employment				
Agriculture	3,200	2,500	- 700	-21.9
Manufacturing and mining	890	1,390	+ 500	+56.2
Railroads	270	150	- 120	-44.4
Federal government	560	740	+ 180	+32.1
Total Primary Employment	4,920	4,780	- 140	- 2.8
Total Derivative Employment	7,360	8,440	+1,080	+14.7
TOTAL EMPLOYMENT	12,280	13,220	+ 940	+ 7.7

Sources: Montana Employment Security Commission, and Montana Economic Study. Projections by Montana Economic Study.

TABLE 5.24

Total Personal Income and Per Capita Personal Income
Region VI and Montana, 1959, 1966, and Projected 1980
(1958 Dollars)

	Total Personal Income					Per Capita Personal Income				
	Millions of Dollars			Average Annual Percentage Rate of Change		Dollars			Average Annual Percentage Rate of Change	
			Projected					Projected		
	1959	1966	1980	1959-1966	1966-1980	1959	1966	1980	1959-1966	1966-1980
Region VI	$ 67.4	$ 76.8	$ 103.0	1.9	2.1	$1909	$2213	$2998	2.1	2.2
Montana	1328	1682	2415	3.4	2.6	1985	2389	3331	2.7	2.4

Sources: U.S. Department of Commerce, Office of Business Economics; and Montana Economic Study. Projections by Montana Economic Study.

Note: Total personal income for regions does not add to state total for 1966 because of Commerce Department revisions in state data (but not regional data).

Chapter 6

Poverty, Unemployment, and Investment Capital

This chapter deals with three subjects that are vitally important to the formation of rational economic development policies. The first is poverty. It seems obvious that primary concern should be with the poverty-stricken.

The second topic--unemployment--is closely related. Policies aimed at generating new jobs will be more useful the better they succeed in providing opportunities for those who need them most.

The third topic--investment capital--is obviously crucial for economic development.

In all three cases, the information now available is sketchy, badly dated, or both. These data deficiencies will hamper efforts to deal with Montana's economic problems. The findings of the 1970 Census of Population will help fill some of the gaps. But others will persist until positive (and expensive) new data collection programs are established.

INCOME INEQUALITY AND POVERTY

As Chapter 3 brought out, between 1950 and 1968 Montana's per capita personal income, which had been well above the national average in the early postwar years, rose very slowly, and by 1968 was only 86 percent of the national average.

Per capita personal income is probably the best single measure we have of the economic well-being of Montanans. It is, nonetheless, far from perfect. One reason, of course, is that income and economic well-being are not synonymous, even though they are clearly related.

Another reason is that averages may conceal about as much as they reveal. Suppose that, in a community with 100 families, one family has an income of $201,000, and the other 99 have incomes of $1,000 each. The average income is $3,000, even though 99 percent of the families earn only one-third that much. The latter fact is surely more important than the former when it comes to appraising the welfare of the 100 families.

This example is, of course, farfetched. But incomes are not distributed equally, and even in communities with high average incomes, there are usually substantial pockets of poverty. Many people wince when they are confronted with statistics on poverty in the richest nation on earth.

We have no statistics on the distribution of personal income, as it is measured by the Commerce Department, among families or individuals in Montana. But the Census of Population does generate detailed data on income distribution. This study is being completed just before data from the 1970 Census become available, so that the latest data we have are a decade old. Nonetheless, these statistics are useful in pointing up problems that doubtless remain, even though some of the details will

have changed in ten years. When the new data become available, of course, they should be analyzed.

In the 1960 Census, a sample of 25 percent of the population was asked to report on certain economic characteristics, including, most importantly, income for the year 1959. Studies have shown that while census income data suffer certain shortcomings (most notably reporting inaccuracies), the weaknesses are not so great as to render them meaningless or, for the most part, seriously misleading. These data are, in any event,by far the most useful we have on the distribution of income among Montanans. (Montana income tax return data are very difficult to use for this purpose for a variety of reasons, the most important of which is that they cannot be accurately related to family spending units.)

One of our staff papers, Distribution of Income and Its Relation to the Economic Welfare of Montanans, by Peter C. Lin, examines the income data from the 1960 Census in considerable detail. The following discussion draws heavily on the findings of that study.

Unlike the personal income figures cited in Chapter 3, the census income figures relate only to money income, which is defined as the sum of wages, salaries, net income of the self-employed, net money rental income, interest and dividends, social security benefits, pensions, payments to veterans, unemployment insurance, and welfare payments. Excluded are various forms of income-in-kind that are included in personal income as it is measured by the Department of Commerce, which, for example, includes "imputed net rent of owner-occupied dwellings," the net rental value of owner-occupied homes. Also included in personal income, but not in money income reported by the census, is the value of food and fuel produced and consumed on farms. These are items that city dwellers must

buy out of money income, but that many farmers and ranchers enjoy in addition to their money incomes.

Despite these differences, the census money income figures cover most of what is included in the Commerce Department's measure of personal income. And the behavior of the two income measures over time is quite similar.

The greatest virtue of the census data on money income is the detail they provide, particularly on the distribution among families, by occupations, by level of education, by area of residence, and by race. These details are taken up below. Perhaps the most serious problem with the data for 1959 is that they pertain to a year in which the agricultural sector of Montana's economy fared particularly badly.

Distribution of Income Among Families

The census defines a family as "two or more persons living in the same household who are related to each other by blood, marriage, or adoption; all persons living in one household who are related to each other are regarded as one family."

A family's money income is the total money income of all members of a family. The median family income for a group of families is a special kind of average. It is the amount of income that divides the families in the group into two equal sub-groups, one having incomes above the median, and the other having incomes below it.

The 1960 Census reports that the median income of Montana families in 1959 was $5,403, 5 percent below the national average. As the first column of table 6.1 indicates, there was a wide variation in the size of income among families.

TABLE 6.1

Percentage Distribution of Money Income of Families
Montana and United States, 1959

	Montana	United States
Under $3,000	20.2	21.4
$ 3,000- 5,999	38.2	32.8
6,000- 9,999	30.1	30.8
10,000-14,999	8.3	10.5
15,000-24,999	2.4	3.3
25,000 and over	0.8	1.3
All Families	100.0	100.0

Source: U.S. Department of Commerce, Bureau of the Census.

Notes: A family consists of two or more persons living in the same household who are related to each other by blood, marriage, adoption; all persons living in one household who are related to one another are regarded as one family.

Details may not add to total because of rounding.

Although 1959's median family income (which was worth about $6,300 in 1968 prices), can hardly be considered a princely sum, it is the families with incomes well below the median that ought to be the source of most concern. As table 6.1 shows, the proportion of families that reported incomes below $3,000--the original "poverty line" for families drawn by the U.S. government--was a substantial 20.2 percent.

Nonetheless, poverty, if the $3,000 line is taken to delineate it, was slightly less prevalent in Montana than it was nationally. For the United States as a whole, 21.4 percent of all families fell below the $3,000 family income line.

In fact, one of the most striking things shown by table 6.1 is that incomes were distributed considerably more equally in Montana than they were nationally. Not only did the state have a smaller proportion of families in the bottom brackets, but it also had a smaller proportion at the top. Only 11.5 percent of all Montana families had incomes of $10,000 and over in 1959, compared with 15.1 percent nationally.

Variation in Number of Workers in Family. The number of earners in a family is one important source of variation among family incomes. For Montana families with three or more workers, median income was $7,932 in 1959 compared with a median of $6,163 for families with two workers, and $5,009 for families with only one worker. The median family income for families with no employed members was only $1,652.

Urban-Rural Differences. Table 6.2 shows percentage distributions of income for families classified by area of residence--urban, rural nonfarm, and rural farm. The main criterion for determining whether a

TABLE 6.2

Percentage Distribution of Money Income of Families and Median Family Income
Urban and Rural Sectors, Montana and United States, 1959

	Montana			United States		
	Urban	Rural Nonfarm	Rural Farm	Urban	Rural Nonfarm	Rural Farm
Under $3,000	15.2	22.4	31.7	16.4	28.9	47.1
$ 3,000- 5,999	36.0	41.9	38.1	31.7	36.8	31.3
6,000- 9,999	35.2	27.9	18.1	34.1	25.2	14.8
10,000-14,999	10.1	5.9	7.6	12.3	6.6	4.6
15,000-24,999	2.8	1.5	3.3	3.9	1.8	1.6
25,000 and over	0.8	0.5	1.2	1.5	0.7	0.6
All Families	100.0	100.0	100.0	100.0	100.0	100.0
Median Income	$5918	$5050	$4289	$6166	$4750	$3228

Source: U.S. Department of Commerce, Bureau of the Census.

Note: Details may not add to total because of rounding.

family is urban or rural is whether it lives in a place having 2,500 or more inhabitants. Many of Montana's smaller towns do not, of course, meet this test, and their residents are classified as rural, but not necessarily farm.

The median income of urban families was substantially higher than that of rural families. Among rural residents, the median income of nonfarm families was substantially above that of farm families. The median income of farm families was about 18 percent below that of rural nonfarm families and 38 percent below that of urban families.

About 32 percent of rural farm families reported incomes under $3,000, compared with about 22 percent of rural nonfarm families, and about 15 percent of urban families.

In interpreting these numbers, the reader should bear in mind that living costs are generally higher in more urbanized areas, and that farmers and ranchers generally enjoy more nonmoney income (such as food produced on the farm) than do city families. We have no way of making any precise allowance for this difference. But we doubt that even if we could, it would invalidate the conclusion that poverty is much more prevalent in rural areas than it is in urban areas, and that it is especially severe among farmers. It is possible to eat enough and still not wear warm enough clothes.

It should be noted, too, that the proportion of families in the highest income ranges is also greatest among rural farm families. In 1959, 4.5 percent of Montana rural farm families reported incomes of $15,000 and over, compared with only 3.6 percent of urban families, and 2.0 percent of rural nonfarm families. Thus, it is apparent that income

inequality is much more marked among farm families than it is among the urban and rural nonfarm families.

Nationally, matters were quite different. First, the gap between median family incomes of urban and rural families was much greater. Second, within categories of families, income inequality was greater. For all three types of families shown in table 6.2--urban, rural nonfarm, and rural farm--the proportion with incomes below $3,000 was higher for the nation as a whole than it was for Montana. Most importantly, whereas in Montana nearly one-third of farm families had incomes below $3,000, for the nation the proportion was nearly one-half.

At the other end of the scale, the proportions of families in the highest brackets were also higher nationally than they were in Montana, for both urban and rural nonfarm families, but lower for farm families. Among urban families, the proportion with incomes over $25,000 was nearly twice as high nationally as it was in Montana. But for farm families, the proportion reporting incomes over $25,000 was twice as high in Montana as it was nationally. In all cases, the proportions of families with incomes above $25,000 were quite small. Overall, only 0.8 percent of Montana's families, and 1.3 percent of families nationwide fell into this class. But over one-fifth of all families fell into the under $3,000 class, both in Montana and nationally.

These comparisons indicate that, at least in 1959, the problem of very low incomes in Montana, though substantial, was somewhat less severe than it was nationally, even though Montana's median income was below the national average.

The data lend support to the proposition that Montana's society is relatively equalitarian. Those in search of an elite of the wealthy would do badly to move to Montana.

Distribution by Occupation

Table 6.3 shows income statistics for families classified according to the occupation of the head of the family. Again, the data indicate that the problem of very low incomes is concentrated in the agricultural sector. Median family incomes of farmers and farm laborers were lower than for any other class except household workers. Over 30 percent of families headed by farmers and farm managers, and over 40 percent of families headed by farm laborers, had money incomes under $3,000. (It should be kept in mind, however, that much of the hired farm labor force receives lodging, and sometimes food, as part of the job.)

Outside agriculture, the incidence of very low incomes is considerably higher among household workers, service workers (cooks, waiters, policemen, barbers, etc.), and nonfarm laborers than it is among professional and technical workers; managers, officials, and proprietors of nonfarm businesses; craftsmen; sales workers; and operatives (persons who operate machinery and other mechanical equipment).

Median incomes of families headed by most classes of workers other than farmers and farm laborers were lower for Montana than they were nationally. Nonetheless, in all but three cases--professional, clerical, and service workers--Montana had a lower-than-average proportion of families with incomes under $3,000.

At the other end of the scale, in only three classes--families headed by farmers, farm laborers, and private household workers--did Montana show

TABLE 6.3

Family Money Income by Occupation of Head of Family
Families with Heads in Experienced Civilian Labor Force
Montana and United States, 1959

	Median Family Income		Percentage of Families: Incomes Under $3,000		Percentage of Families: Incomes Over $10,000	
	Montana	U.S.	Montana	U.S.	Montana	U.S.
Professional and technical	$7181	$8477	5.4	4.1	22.6	34.9
Managers, officials, and proprietors (except farm)	7440	8399	6.9	7.1	26.2	36.8
Sales workers	6305	6949	8.3	9.4	15.2	24.4
Craftsmen and foremen	6076	6500	6.4	8.1	8.7	14.1
Clerical workers	5875	6218	10.0	7.7	10.0	13.3
Operatives	5347	5595	11.1	13.8	6.0	8.5
Laborers, except farm and mine	4748	4479	18.4	26.7	3.5	5.2
Service workers, except private household	4665	4839	23.8	23.7	5.2	7.7
Farmers and farm managers	4515	5067	30.9	49.1	15.4	7.4
Farm laborers, except foremen and unpaid laborers	3413	2398	40.9	62.2	3.5	1.9
Private household workers	1970	1770	70.7	73.0	2.2	1.5
ALL WORKERS	$5752	$6116	14.3	14.7	12.8	16.9

Source: U.S. Department of Commerce, Bureau of the Census.

a higher proportion with incomes over $10,000. In the latter two cases, however, the proportions were very small both in Montana and nationally.

Even among the various occupational groups, then, income inequality is less pronounced for the state than for the nation. It may thus be concluded that the lower incidence of poverty in Montana is not due to peculiarities of the occupational distribution of the state's labor force.

Other Factors Associated with Low Incomes

Aside from occupation, the characteristics most clearly related to the incidence of low incomes are race, education, age, and sex of the worker.

As one might expect, average earnings of nonwhites are substantially lower than those of whites, and the nonwhite races account for a disproportionate share of poverty. Most of Montana's nonwhites are Indians, whose economic plight is considered in detail below. Suffice it to say here that almost half of the nonwhite families reported 1959 incomes under $3,000.

Earnings also are closely related to education, as table 6.4 indicates. Among male workers, median earnings of those with 16 or more years of education (college trained) are 30 percent higher than median earnings of workers with only 12 years of education. Median incomes of those with high school education are, in turn, 40 percent higher than those of workers educated only through the eighth grade. Among female workers, the disparities are even greater.

TABLE 6.4

Median Income of Persons 25 Years and Over
by Sex and by Years of School Completed
Montana, 1959

Years of School Completed	Male	Female
0	$1439	$ 723
1-4	1820	802
5-7	2792	863
8	3682	971
9-11	4478	1195
12	5156	1609
13-15	5325	1997
16 or more	6691	3033

Source: U.S. Department of Commerce, Bureau of the Census. and Montana Economic Study.

Women generally earn substantially less than men, even when they have more education. The statistics are not easily interpreted, since a larger proportion of women work part-time. But among women who did work in 1959, reported earnings were, on the average, only one-third to one-half those of men with equivalent education.

The Incidence of Poverty by Region

The problem of low incomes is everywhere, but its relative importance varies widely among the six economic regions of the state defined for this study. Table 6.5 shows weighted average median family incomes in 1959 for the six regions. (These averages are calculated by weighting median family incomes for each county in a region by the number of families in the county.) It needs to be kept in mind, of course, that agricultural incomes in many areas were depressed in 1959.

Region II, which includes Cascade County, and Region V, which includes Yellowstone County, had the highest weighted medians. Next in line were Region IV (the southwestern portion of the state, including Silver Bow and Gallatin Counties), Region I (the northwest, including Missoula County), and Region III, (the northeast including Dawson, Richland, and Roosevelt Counties). At the bottom was Region VI, (the southeast, which includes Custer County).

Table 6.5 shows data on the distribution of income within each of the regions, and within the counties that make up each region. The highest regional incidence of extremely low incomes in 1959 was in the southeastern part of the state (Region VI), where over 27 percent of all families reported incomes under $3,000. In Garfield County, the

TABLE 6.5

Percentage Distribution of Family Money Incomes by Level of Income and Median Family Incomes
Montana Counties by Economic Regions, 1959

	Percentage in Income Class				Median Income
	Under $3,000	$3,000-5,999	$6,000-9,999	$10,000 and Over	
Flathead	20.0	38.8	31.9	9.3	$5302
Granite	20.5	46.3	28.3	5.0	4937
Lake*	32.8	42.0	20.6	4.7	4183
Lincoln	16.8	42.7	32.3	8.3	5483
Mineral	12.7	41.4	37.2	8.8	5758
Missoula	16.4	37.1	34.0	12.5	5769
Ravalli	38.8	38.2	17.3	5.7	3819
Sanders	20.8	44.4	27.6	7.1	4969
Region I	21.5	39.4	29.9	9.2	5224
Blaine*	30.8	38.5	21.4	9.4	4416
Cascade	14.2	35.4	36.4	14.0	6032
Chouteau	17.9	37.3	26.8	18.1	5610
Fergus	24.2	38.5	24.2	13.2	4992
Glacier*	28.7	32.7	26.4	12.2	5169
Hill*	14.7	32.7	34.1	18.4	6210
Judith Basin	21.9	39.8	21.7	16.5	5332
Liberty	16.0	35.8	24.5	23.7	5858
Meagher	21.7	43.6	25.8	9.0	4948
Petroleum	17.8	48.4	26.5	7.3	5418
Phillips	30.6	42.7	19.3	7.5	4353
Pondera	21.8	39.9	24.1	14.1	5078
Teton	25.1	35.2	24.6	15.0	5267
Toole	12.7	37.0	33.3	17.0	6023
Region II	18.4	36.2	31.0	14.4	5654
Daniels	29.1	42.2	22.6	6.1	4488
Dawson	18.7	38.6	30.9	11.9	5554
McCone	37.1	35.6	19.0	8.3	3915
Richland	28.6	39.7	23.3	8.4	4462
Roosevelt*	30.7	38.4	22.3	8.6	4562
Sheridan	27.9	47.6	18.0	6.5	4550
Valley	21.1	37.0	30.2	11.6	5325
Wibaux	44.0	39.0	13.9	3.2	3431
Region III	26.0	39.3	25.3	9.3	4856
Beaverhead	24.0	40.4	24.2	11.4	4998
Broadwater	32.7	45.3	15.2	6.8	3988
Deer Lodge	13.1	51.5	29.1	6.3	5022
Gallatin	21.3	37.2	31.7	9.8	5360
Jefferson	25.0	37.0	25.0	13.0	4989
Lewis & Clark	12.3	31.9	38.2	17.6	6461
Madison	31.5	37.8	23.1	7.6	4470
Park	20.4	41.0	31.0	7.6	5253
Powell	18.4	42.9	30.4	8.3	5384
Silver Bow	18.8	42.3	29.7	9.3	5283
Region IV	18.6	40.1	30.9	10.4	5416
Big Horn*	31.0	38.4	21.7	9.0	4375
Carbon	30.4	44.0	20.0	5.6	4336
Golden Valley	35.4	38.7	18.4	7.6	4044
Musselshell	27.8	35.8	28.9	7.6	4927
Stillwater	22.2	44.5	25.9	7.4	4790
Sweet Grass	28.6	38.8	23.4	9.2	4333
Treasure	32.8	37.4	22.6	7.2	4538
Wheatland	21.8	38.0	25.7	14.5	5400
Yellowstone	13.5	34.7	36.1	15.8	6150
Region V	18.2	36.5	32.1	13.3	5650
Carter	30.2	38.9	17.9	13.1	4199
Custer	21.9	40.8	26.7	10.7	5160
Fallon	26.1	42.4	25.7	5.9	4694
Garfield	46.2	31.1	13.5	9.3	3511
Powder River	28.1	35.7	21.4	14.8	4797
Prairie	28.8	39.7	20.8	10.7	4470
Rosebud*	31.6	36.9	22.5	9.0	4399
Region VI	27.2	39.1	23.5	10.2	4700

Source: U.S. Department of Commerce, Bureau of the Census and Montana Economic Study.

*Indian reservation counties.

proportion was an astounding 46 percent, and it was over 30 percent in both Rosebud and Carter Counties.

Region III, the northeastern part of the state, did not fare much better--26 percent of families in that area reported incomes under $3,000. In Wibaux County, 44 percent of all families reported incomes in the lowest class. In both McCone and Roosevelt the proportion of low-income families exceeded 30 percent.

In Region I, the northwestern portion of the state, 21.5 percent of all families reported 1959 incomes under $3,000. The most serious problems were in Ravalli and Lake Counties, where 39 and 33 percent of all families, respectively, fell below the $3,000 line.

In the other three regions, the number of low-income families was between 18 and 19 percent of the total. But within each of these regions, there were significant pockets of poverty. In Region II, north central Montana, over 30 percent of families in both Blaine and Phillips Counties reported incomes under $3,000. In Region IV, southwest Montana, the proportion of families in the lowest income class was over 30 percent for both Madison and Broadwater Counties. Finally, in Region V, the south central portion of the state, four counties--Golden Valley, Treasure, Big Horn, and Carbon, showed more than 30 percent of families with incomes under $3,000.

Poverty was, then, a significant problem in all regions and in almost all counties. But most counties with extraordinary proportions of families in the lowest income range were counties that rely heavily on agriculture for income. At the same time, as table 6.5 shows, many agricultural counties were among those with the lowest incidence of

extremely small incomes. Although poverty seems to be associated particularly with agriculture, it is by no means evenly distributed among agricultural counties. In particular, it is least common in the area of large-scale grain operations along the High Line.

A second striking feature of the county data is that the incidence of very low incomes was extremely high in Indian Reservation counties, denoted by asterisks in table 6.5 We turn now to that problem.

Indian Poverty

America is beginning to come to grips with the fact that nonwhites have by and large, failed to share in the nation's prosperity. The statistics on poverty in general are dismal enough. But for nonwhites, the facts are utterly shocking. Nationally, the median income of white families in 1959 was $5,893. For nonwhite families (mostly Negroes) it was only $3,161, only 53 percent as high.

Nonwhites comprise a much smaller proportion of Montana's population than of the nation's. According to the Census of Population, only 24,000, or 3.6 percent of Montana's 1960 residents were nonwhites. Indians, numbering 21,200, accounted for nearly nine-tenths of the nonwhite total. There are no separate statistics on Indian incomes, but clearly the nonwhite averages are dominated by the figures for Indians.

The economic status of Montana's nonwhites is just as bad as that of nonwhites nationally. One of our staff studies, Indian Poverty in Montana: Findings of the 1960 Census, by Peter C. Lin and Samuel B. Chase, Jr., takes a close look at data on incomes of the state's nonwhite population. Here we report some of the major findings.

The 1959 median income of nonwhite families in Montana was only $3,011, just 55 percent of the $5,453 median for white families. As table 6.6 shows, the proportion of families with incomes under $1,000 was three times as great for nonwhites as it was for whites. The same was true for the $1,000 to $1,999 bracket. And, whereas 20 percent of white families had incomes under $3,000, half of nonwhite families fell into this category.

It seems clear enough that Montana's nonwhite population is no better off, relative to whites, than is the nonwhite population nationally. In fact, detailed examination of the income statistics leads to the conclusion that the main reason that poverty is, overall, slightly less serious in Montana than it is nationally is simply that the state has a relatively smaller nonwhite population.

Not only are nonwhite incomes lower on the average, but there is greater inequality of incomes among nonwhites, which tends to intensify the poverty problem. This is true nationally and in Montana as well. It means that the poorest of the nonwhites are even worse off, relative to the poorest of the whites, than is the "average" nonwhite relative to the "average" white. The 25 percent of nonwhite families in Montana with the lowest incomes reported an average income of only $956 in 1959 considerably less than half the $2,116 average income of the 25 percent of white families in the bottom one-fourth of the income distribution.

Concentration in Rural Areas. Over four-fifths of Montana's nonwhite families lived in rural areas in 1960. Two-thirds were classified as nonfarm rural (see table 6.7). It was in this latter group that poverty was most prevalent. The 1959 median family income

TABLE 6.6

Percentage Distribution of Families
by Level of Money Income and by Color
Montana, 1959

	White	Nonwhite
Under $1,000	4.23	13.60
$ 1,000-1,999	6.62	19.63
2,000-2,999	8.60	16.60
3,000-3,999	11.21	14.66
4,000-4,999	12.88	11.17
5,000-5,999	14.24	8.74
6,000-6,999	11.52	3.73
7,000-7,999	8.42	4.53
8,000-8,999	6.35	2.25
9,000-9,999	4.24	1.36
10,000 and over	11.68	3.72
	100.00	100.00

Source: U.S. Department of Commerce, Bureau of the Census.

Note: Details may not add to total because of rounding.

TABLE 6.7

Place of Residence of Families
Montana, 1960

	White	Nonwhite	Total
Urban	84,333	762	85,095
Rural nonfarm	52,173	2,680	54,853
Rural farm	25,302	527	25,829
Total	161,808	3,969	165,777

Source: U.S. Department of Commerce, Bureau of the Census.

for Montana's nonwhite population living in rural areas, but not on farms, was only $2,773, or 54 percent of the $5,143 average for rural nonfarm white families.

Poverty in Indian Reservation Counties. Most of Montana's nonwhites lived in the seven counties included in figures 6.1 and 6.2. Each of these seven counties had 1,000 or more resident Indians in 1960, and each included reservation land. In every case, the median family income of nonwhite families was substantially below that of white families. And in each case, the proportion of families with incomes below $3,000 was substantially higher for nonwhites. In all but Blaine and Lake Counties, even the median income of nonwhite families was under $3,000.

Factors Associated with Low Incomes of Nonwhites. As one would expect, educational levels are lower among nonwhites, unemployment is higher, and a small proportion of nonwhites work at the higher-paying jobs. Table 6.8 shows educational attainments of persons 25 years and older in 1940, 1950, and 1960, for both whites and nonwhites. Over time, average educational attainment has increased for both groups, but Montana's nonwhites continue to lag far behind whites. By 1960, the median number of school years completed was 8.7 for nonwhites, three years less than for whites. Twenty years earlier, when average educational attainment was lower for both groups, the discrepancy in favor of whites had been only 2.2 years. Furthermore, while one can only speculate about differences in quality of education, the low attainment record of nonwhites certainly points a finger of suspicion at Indian schools.

FIGURE 6.1

Median Family Incomes in 1959
White and Nonwhite
State of Montana and 7 Counties

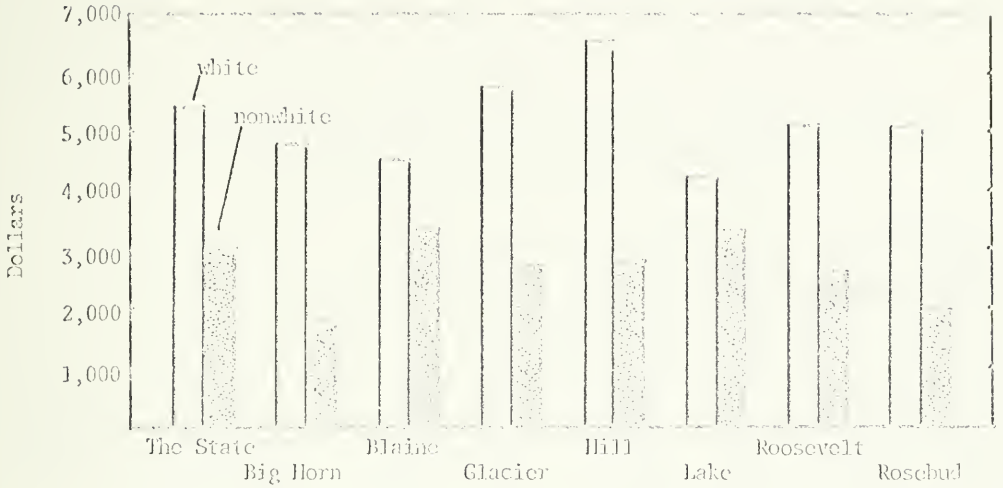
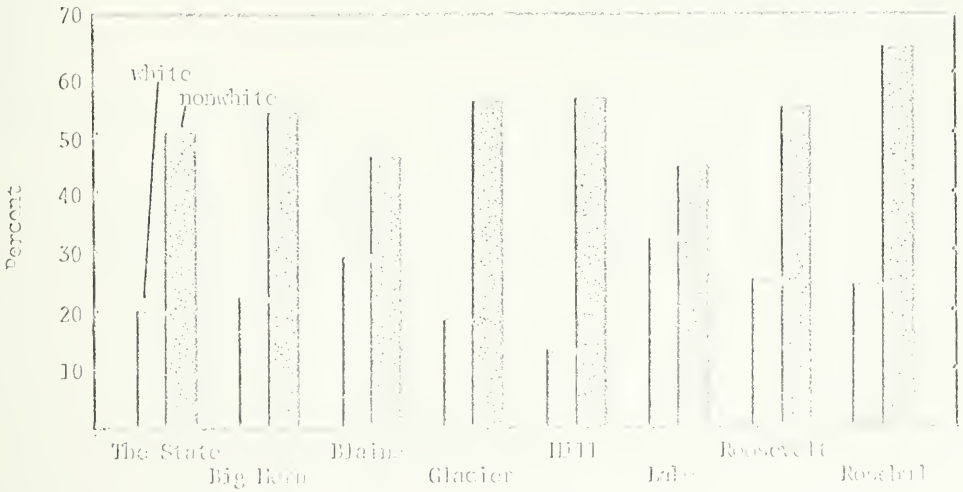


FIGURE 6.2

Percentage of Families with Incomes Under $3,000 in 1959
White and Nonwhite
State of Montana and 7 Counties



Source: U.S. Census of Population: 1960.

TABLE 6.8

Percentage Distribution of School Years Completed and Median School Years, Persons 25 Years Old and Over by Color, Montana, 1940, 1950, and 1960

	1940		1950		1960	
	White	Non-white	White	Non-white	White	Non-white
	Percentage Distribution					
No school	1.2	15.8	1.1	7.9	0.8	4.1
Elementary 1 to 4 years	5.6	19.2	4.9	16.9	3.0	10.4
5 and 6 years	7.8	17.7	6.1	14.8	4.2	12.7
7 years	5.3	7.9	5.8	10.2	4.7	9.0
8 years	35.2	19.2	25.9	19.4	21.6	20.1
High school 1 to 3 years	15.0	11.5	15.6	17.3	17.1	22.4
4 years	16.1	6.0	23.1	9.4	28.5	14.5
College 1 to 3 years	8.9	2.0	11.2	2.4	12.4	5.1
4 or more years	4.9	0.7	6.4	1.7	7.7	1.7
	100.0	100.0	100.0	100.0	100.0	100.0
Median school years completed	8.9	6.7	10.2	8.0	11.7	8.7

Source: U.S. Department of Commerce, Bureau of the Census.

Note: Details may not add to total because of rounding.

Table 6.9 shows the distribution of the white and nonwhite labor forces among occupations, ranked from low-to-high by median earnings in 1959. The pattern is very clear; nonwhite employment was heavily concentrated in the lower-paying occupations.

The effect of this concentration in low-paying occupations was greatly intensified by the higher level of unemployment among nonwhites in 1960. About one-fourth of the nonwhite work force was unemployed during the census week that year, compared with only about one-sixteenth of the white labor force. No doubt this discrepancy reflected seasonal factors, since the seasonal upswing in employment in rural areas is just getting under way in early April, when the census is taken, and most nonwhites live in rural areas. On the average, therefore, the discrepancies may not be quite so large. We have no data to guide us, but it is probable that over the year as a whole, unemployment is still much higher for nonwhites than it is for whites.

In all of the foregoing respects, the "reasons" for nonwhite poverty in Montana are similar to those that apply across the nation. On the basis of the information that is available it cannot be said that those nonwhites living in the state--most of whom are Indians--are doing any better than their national counterparts, most of whom are Negroes.

Income inequality generally, and poverty in particular, are major problems in free societies. All sorts of programs are devised to deal with them, but poverty remains a serious problem. In Montana's case, as nationally, the statistics indicate that poverty is concentrated among the less educated and among minority races. We anticipate that concern over poverty, which has intensified in recent years, will not wither away. It is one of the major blemishes on the economic landscape.

TABLE 6.9

Median Earnings of Workers in 1959 and Percentage Distribution by Occupation and by Color in 1960
Experienced Civilian Male Labor Force, Montana

	Median Earnings in 1959	Percentage Distribution		
		Total	White	Nonwhite
Private household workers	N.A.	0.13	0.13	0.13
Farm laborers and foremen	$1645	7.16	6.82	21.76
Laborers, except farm and mine	5119	7.91	7.67	18.16
Service workers, except private household	5548	5.57	5.54	6.83
Farmers and farm managers	5638	14.07	14.16	10.17
Occupation not reported	5856	2.50	2.45	4.43
Operatives and kindred workers	4108	15.33	15.31	15.94
Sales workers	4752	5.37	5.46	1.62
Clerical and kindred workers	4832	4.82	4.84	4.22
Craftsmen, foremen, and kindred workers	5092	17.30	17.46	10.45
Professional, technical, and kindred workers	5988	8.56	8.66	4.02
Managers, officials, and proprietors, except farm	6115	11.27	11.48	2.28
Male, 14 years old and over	$4397	100.00	100.00	100.00

Source: U.S. Department of Commerce, Bureau of the Census.

Note: Details may not add to total because of rounding.

N.A. = Not available.

UNEMPLOYMENT

One important cause of income inequality is unemployment. The incidence of joblessness is extremely uneven--a relatively small proportion of workers are hit by it, and they are hit hard.

The postwar U.S. economy has been remarkably stable by historical standards. Unemployment has, to be sure, been a persistent problem, especially during the late 1950s and early 1960s, and has increased again in 1970 as federal policies have been directed toward arresting inflation. But never since World War II has it assumed anything like the catastrophic proportions it did during the depression of the 1930s.

The National Planning Association's projections of U.S. economic activity assume that unemployment in 1980 will amount to 3.7 percent of the labor force, nearly as low as it was in 1968, and considerably below the average level that can be expected in the near future. We think it is reasonably safe to say that Montanans will not face massive unemployment during the next decade. Our projection assumes that unemployment in 1980 will amount to 4.7 percent of the state's labor force.

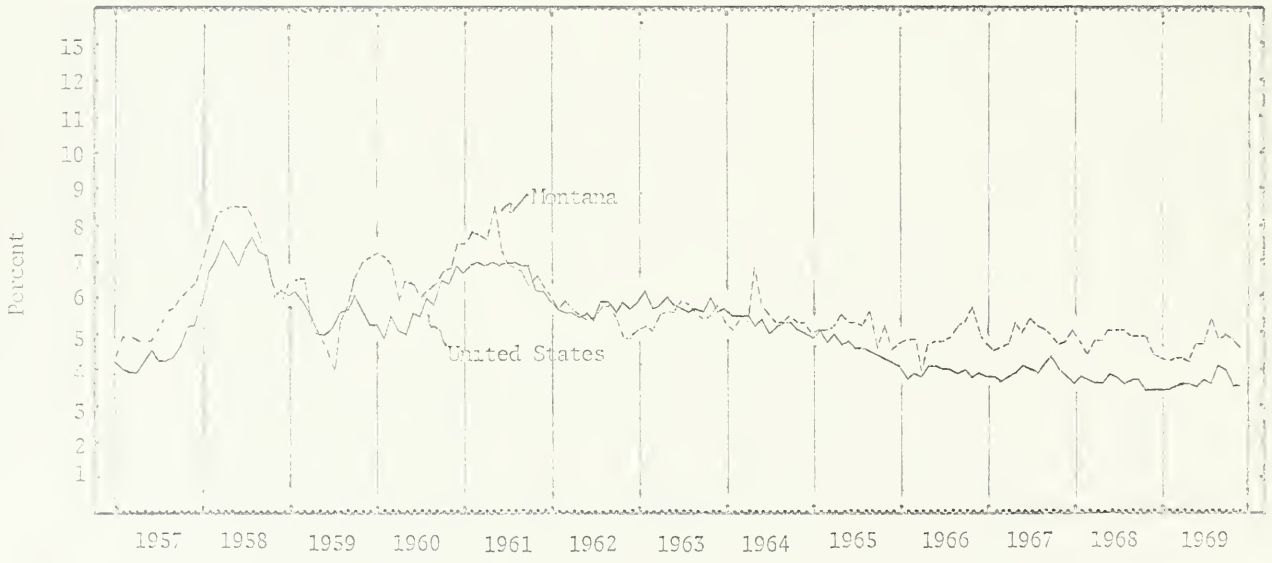
Nevertheless, we expect that unemployment will continue to be a nagging problem in the state, as it has been for many many years.

Montana's Above-Average Unemployment Rate

Figure 6.3 shows Montana's unemployment rate, expressed as a percent of the civilian labor force, from 1957, when the Department of Employment Security first began gathering and publishing the figures, through 1969. The data are adjusted to eliminate the effects of purely seasonal factors, which will be discussed later. The chart also shows seasonally adjusted unemployment for the nation as a whole.

FIGURE 6.3

Seasonally Adjusted Unemployment as a Percentage of the Civilian Labor Force
Montana and United States, Monthly, 1957-1969



Source: Montana Employment Security Commission.

Note: All vertical bars represent the month of January.

As Chapter 2 pointed out, Montana's unemployment rate during the week of the April census in 1950 was 5.1 percent, the same as the nation's. The country was then emerging from its first postwar recession. Although no figures are available for 1951-1956, it seems likely that the Montana rate fell, along with the national one, as the Korean War boom got under way in the early 1950s. But by 1957, when the monthly series shown in figure 6.3 was first compiled, Montana's unemployment was well above the national rate. During the last six months of 1957, Montana's unemployment averaged 5.8 percent, compared with a national average of 4.6 percent. It was during this period that the recession of 1957-1958 got under way. Before it was over, Montana's unemployment rate reached 8.5 percent (in May, June, and July of 1958). For the nation as a whole, unemployment peaked at 7.6 percent in August 1958.

Recovery from recession saw the state's unemployment rate fall even faster than the national rate until mid-1959. Then it rose above the national average once more and stayed there through the recession of 1960-1961.

During the first few years of sustained national economic growth that began in 1961, Montana's unemployment rate again followed--and, for a time, led--the national rate down. But starting in 1965, unemployment in Montana leveled off, even though it continued to fall nationally.

From 1965 through 1969, unemployment in Montana has tended to fluctuate from 4 percent to 5 1/2 percent of the labor force, substantially higher than the national average. In 1968, Montana's unemployment rate averaged 4.8 percent, compared with a national average of 3.6 percent. In 1969, the state average fell to 4.5 percent, but the national rate fell to 3.5 percent that year.

We project that Montana's unemployment rate in 1980 will average 4.7 percent, one percentage point above the rate projected by NPA for the nation as a whole. The reason is that we expect the surplus of labor--the excess of the "natural" growth of the labor force over the growth of jobs in the state--to average 3,300 workers per year between 1968 and 1980, even higher than the 2,500 average annual "job gap" for 1960-1968. It seems unlikely that the state's unemployment rate will fall as low as the national average for any extended period if the state's surplus of labor continues, as we expect it will.

The consequences are serious. The fact that Montana's unemployment rate has been about one percentage point higher than the national rate means that about 2,500 more of the state's workers are out of jobs than would be if the Montana rate were to fall to equality with the national one--enough workers to account for total employment in a fair-sized Montana city.

Seasonal Swings in Unemployment

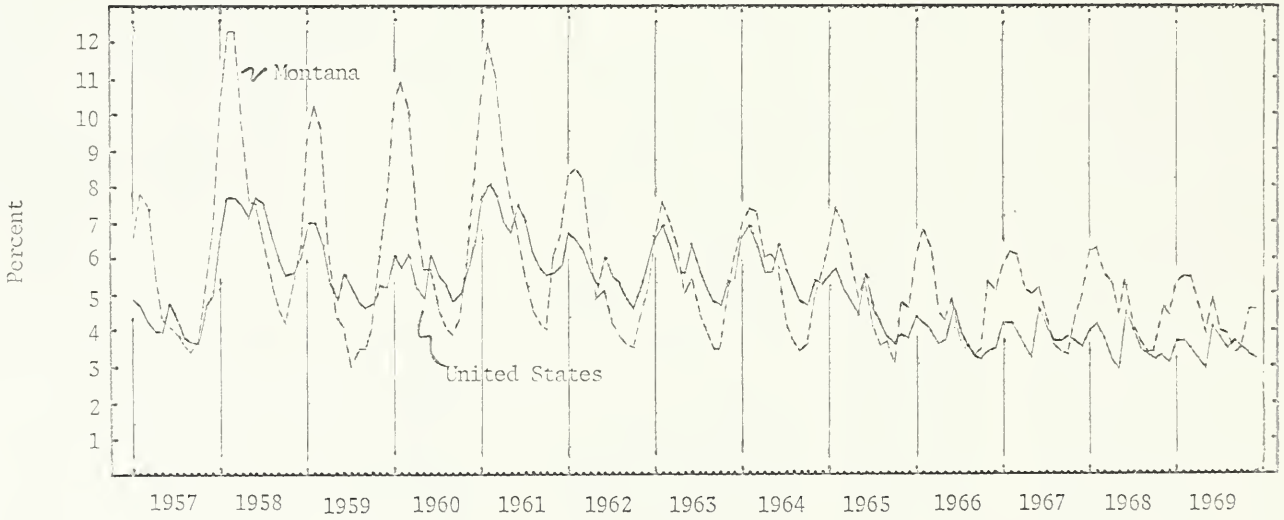
The seasonally adjusted data in figure 6.3 bring out the cyclical movements of unemployment--changes due to swings in business activity of a nonseasonal sort. Seasonal adjustment also facilitates comparisons of the Montana trend with the national one.

But the seasonal adjustment hides something very important--the increase in Montana's unemployment that takes place every winter, and the regular decline in spring and summer. Figure 6.4 shows Montana's monthly unemployment rates from 1957 through 1969 without seasonal adjustment, along with similar data for the nation.

During the late 1950s and early 1960s, the seasonal pattern was extremely severe. In 1959, for example, unemployment reached a low of 3.0

FIGURE 6.4

Unemployment as a Percentage of the Civilian Labor Force
Montana and United States, Monthly, 1957-1969



Source: Montana Employment Security Commission.

Note: All vertical bars represent the month of January.

percent in July, and then rose to a high of 10.9 percent in February 1960, a swing of 7.9 percentage points, or roughly 19,000 workers.

By the late 1960s, the seasonal fluctuation had been reduced dramatically. For example, the low in 1967 occurred in October, when unemployment fell to 3.3 percent. In February 1968, unemployment reached its seasonal high, only 6.3 percent. The total seasonal swing, then, had fallen to 3.0 percentage points.

Aside from the narrowing of the seasonal fluctuation, there appears to have been a tendency, in recent years, for the seasonal low to occur later in the year--in September or October--compared with midsummer in earlier years.

Undoubtedly the declining relative importance of agriculture has played the most important role in reducing the seasonal swing in Montana's total unemployment. Lacking detailed data, we are unable to say much more. In particular, we are at a loss to explain why so much of the change in the seasonal pattern occurred during two or three years in the early 1960s.

More and more, apparently, it is possible for Montana workers to obtain year-round work. The reduction of seasonal unemployment constitutes an important and welcome change for Montana's economy.

Some Details of Unemployment from the 1960 Census

The only available detailed data on unemployment for the state are from the 1960 Census of Population. These figures are so old that their usefulness is severely limited. Soon data from the 1970 Census will be available, and they should be looked at carefully.

In the meantime, it is useful to examine the 1960 findings, if only because they show that the incidence of unemployment in that year was

extremely uneven, geographically, by sex, and by race (table 6.10). The details will have changed since then, but there is little doubt that the uneven impact of joblessness persists.

Disparities in Unemployment. Table 6.10 shows unemployment rates from the 1960 Census. The data relate to early April and were obtained from the same 25 percent sample of persons who were asked to report income in 1959.

As table 6.10 shows, the average rate of unemployment among urban workers in April 1960 was 6.8 percent, the same as the average rate for the state as a whole. But among urban workers, unemployment ranged from a low of 6.4 percent for white males to a high of 18.3 percent for nonwhite males.

Unemployment rates were generally higher for rural nonfarm residents than for either those who lived on farms or those who lived in urban areas. The average unemployment rate for all nonfarm rural residents was 8.8 percent. The average for rural nonfarm nonwhite males--mostly Indians--was a startling 33.5 percent.

It should be kept in mind that in early April of 1960, when the census was taken, unemployment in rural areas was still somewhat above the average rate for the year on account of seasonal factors. But the worst of the winter's seasonal increase is well behind by April.

For rural farm residents, the unemployment rate during the census week of 1960 averaged only 2.7 percent. Farm owners dominate this figure. They are classified out-of-work during the off season only if they are "not at work" and are, or have recently been, actively looking for a job.

TABLE 6.10

Unemployment Rates by Color, Sex, and
Place of Residence
Montana, April 1960
(Percent of Civilian Labor Force)

	Urban	Rural Nonfarm	Rural Farm	State
White males	6.4	8.2	2.0	6.1
Nonwhite males	18.3	33.5	15.0	26.9
White females	7.3	6.9	4.7	7.0
Nonwhite females	16.2	19.5	39.3*	19.2
All workers	6.8	8.8	2.7	6.8

Source: U.S. Department of Commerce, Bureau of the Census.

*The base was so small that this figure has questionable meaning.

For white males in the rural farm group, the unemployment rate was just 2.0 percent in April 1960. For nonwhite males, however, unemployment was again distressingly high. The high rate for nonwhite females living on farms shown in table 6.10 is based on a sample so small that the results cannot be taken very seriously.

All in all, unemployment was significantly higher for nonwhites than for whites, and was highest in rural nonfarm areas. This is the same as the pattern of incidence of low incomes, discussed earlier. And, as that discussion brought out, high unemployment was one of the major factors behind the low average incomes of Montana's nonwhite population.

Unemployment by Region and by County. Table 6.11 shows April 1960 unemployment rates for each of Montana's six economic regions, and for the counties within each region. Among the regions, joblessness ranged from 10.5 percent of the labor force in Region I, the northwestern part of the state, to 4.9 percent in Region VI, the southeastern portion. It was highest in Lincoln County, at 17.3 percent, and lowest in Wibaux County, at only 0.7 percent.

The data are so old that little can be gained from examining them closely. They do reveal, however, that the geographic incidence of unemployment was extremely uneven in 1960. The same, no doubt, is true today. There is a moral here for the planning of state economic development policy. Industrial development that leads to new jobs will be most helpful when it is located in or near the areas where unemployment is most severe. It would therefore be very helpful if the state could gather and disseminate information on regional unemployment rates on a regular basis.

TABLE 6.11

Unemployment Rates by County and Region
Montana, April 1960

Flathead	13.8	Beaverhead	5.2
Granite	10.6	Broadwater	3.0
Lake	9.1	Deer Lodge	5.7
Lincoln	17.3	Gallatin	3.9
Mineral	9.2	Jefferson	3.0
Missoula	7.8	Lewis & Clark	5.0
Ravalli	6.8	Madison	3.4
Sanders	10.0	Park	7.7
Region I	10.5	Powell	3.9
		Silver Bow	8.7
		Region IV	6.0
Blaine	7.1		
Cascade	6.2		
Chouteau	1.8		
Fergus	3.1		
Glacier	12.8	Big Horn	9.9
Hill	6.3	Carbon	3.7
Judith Basin	1.6	Golden Valley	2.3
Liberty	5.1	Musselshell	3.8
Meagher	8.1	Stillwater	2.2
Petroleum	1.9	Sweet Grass	4.7
Phillips	4.3	Treasure	3.4
Pondera	3.5	Wheatland	1.4
Teton	2.2	Yellowstone	6.5
Toole	5.5	Region V	6.0
Region II	5.7		
Daniels	3.7		
Dawson	4.1	Carter	3.2
McCone	3.9	Custer	6.0
Richland	7.8	Fallon	3.5
Roosevelt	8.8	Garfield	3.8
Sheridan	5.5	Powder River	1.4
Valley	8.6	Prairie	2.8
Wibaux	0.7	Rosebud	6.7
Region III	6.6	Region VI	4.9
		STATE TOTAL	6.8

Sources: U.S. Department of Commerce, Bureau of the Census, and Montana Economic Study.

Seasonal Unemployment, Wages, and Incomes.

Data on hourly wage rates in Montana are scarce. The 1958 Census of Manufactures, however, does give hourly wage rates for production workers in manufacturing in that year. These data indicate that wage rates in Montana were higher than the average for the nation in 1958. This was true both for "raw" wage rates, and even more so for average wage rates by industry. (In lumber and wood products particularly, Montana firms paid higher than average wages.)

A detailed analysis of this and related questions is presented in one of our staff studies, Structural Determinants of Wage and Income Levels in Montana, by Paul E. Polzin. Here we shall only summarize the most striking finding of that study.

Montana ranked among the top 25 percent of all states in terms of average hourly wages in manufacturing in 1958. It ranked even higher in most individual industries. But data on 1959 incomes from the 1960 Census reveal that average annual earnings in Montana were well below the national averages for workers in the same industries.

Problems of data comparability preclude making definitive judgments about the reasons for this apparent contradiction. The most likely explanation, however, is that although manufacturing wages were higher in Montana than they were nationally in 1958, annual earnings were lower than average because Montanans work fewer days per year than their national counterparts. The seasonality of employment acts as a drag on annual income.

More recent figures published by the Department of Labor show that average weekly earnings of production workers in manufacturing are higher

in Montana than they are in all but a few states. In 1968, only seven states--Ohio, Indiana, Michigan, Nevada, California, Alaska, and Washington--were above Montana by this measure (see table 6.12). But recent data on incomes from the Department of Commerce personal income series indicate that annual earnings of Montana manufacturing workers are below the national average for all manufacturing workers. Thus, there remains a presumption that the seasonality of employment in Montana works to hold down the incomes of the state's manufacturing workers relative to the national average, even though hourly and weekly wages are higher here.

This question is taken up in the industry studies of Part II of this Report. It deserves even more attention. Unfortunately, proper study requires data not now available. Information from the next Census of Manufactures and from the 1970 Census of Population should be helpful in this respect. In addition, the state might want to explore the possibility of conducting detailed unemployment and wage surveys. The U.S. Bureau of Labor Statistics now conducts wage surveys in a number of places, including Boise, Idaho; Salt Lake City, Utah; and Spokane, Washington; but none in Montana. Possibly the Bureau could be induced to include a Montana city in its sample.

PRIVATE INVESTMENT CAPITAL

Income is produced by wealth, or as it is more commonly known in economics, capital. In the jargon of economics, an economy's capital includes buildings and other structures, machinery and equipment, and what is sometimes called human capital, which is the source of labor

TABLE 6.12

Average Weekly Earnings of Production Workers
on Manufacturing Payrolls
50 States, 1950, 1960, 1968

	1950	1960	1968
New England			
Maine	$ 48.93	$ 71.15	$ 98.09
New Hampshire	48.64	70.45	98.33
Vermont	50.77	76.59	108.00
Massachusetts	55.98	81.96	114.40
Rhode Island	51.72	73.70	101.96
Connecticut	59.69	93.26	128.63
Middle Atlantic			
New York	59.55	89.61	121.48
New Jersey	61.65	93.93	125.76
Pennsylvania	56.77	89.86	119.20
East North Central			
Ohio	NA	104.13	142.58
Indiana	64.34	100.49	136.86
Illinois	62.69	97.70	132.53
Michigan	71.30	112.00	164.15
Wisconsin	61.71	96.32	130.97
West North Central			
Minnesota	59.06	95.07	128.87
Iowa	58.16	93.68	130.14
Missouri	NA	87.57	122.31
North Dakota	NA	81.85	107.45
South Dakota	56.12	90.90	121.32
Nebraska	53.23	87.41	119.37
Kansas	59.18	95.82	126.32
South Atlantic			
Delaware	58.30	91.01	129.34
Maryland	55.46	90.63	122.61
Virginia	47.55	70.62	101.11
West Virginia	NA	93.27	122.41
North Carolina	43.34	61.14	88.48
South Carolina	44.51	63.27	92.06
Georgia	43.52	65.40	96.70
Florida	46.20	76.07	105.82
East South Central			
Kentucky	NA	83.92	117.23
Tennessee	47.84	73.23	99.58
Alabama	47.32	75.65	105.32
Mississippi	39.68	60.50	91.43
West South Central			
Arkansas	42.33	62.71	88.84
Louisiana	50.63	86.71	121.93
Oklahoma	57.10	85.47	114.11
Texas	57.10	89.19	119.81
Mountain			
Montana	64.58	96.04	133.33
Idaho	63.96	90.00	119.30
Wyoming	68.56	95.25	118.50
Colorado	NA	98.25	130.60
New Mexico	58.25	82.58	102.47
Arizona	62.63	99.14	123.52
Utah	57.10	98.89	126.63
Nevada	73.85	113.30	150.14
Pacific			
Washington	67.63	101.78	141.73
Oregon	70.00	97.04	132.66
California	65.39	104.28	138.63
Alaska	NA	NA	171.97
Hawaii	NA	NA	112.68

Source: U.S. Department of Labor, Bureau of Labor Statistics.

NA = Not available.

services. If the meaning of the term is broadened to include land, then capital becomes synonymous with productive resources, or ultimate wealth. For the last several decades, economic thinking has tended to focus on income flows, rather than on the capital that produces these flows. Statistics on income are much more readily available, and much more reliable, than those on capital.

Within the past few years, this emphasis has been changing. In the future, much more attention will be paid to capital--its measurement in physical terms, its value, and its contribution to the production process.

At the present time, there is little solid information on capital, at least at the state level. The accumulation of capital, vital as it is to a region's growth, cannot be measured without large-scale special studies. There are, however, some fragments of information available, and from these we shall try to make some generalizations about the adequacy of physical capital, particularly privately-financed investment in buildings and machinery, in the state. (We omit residential housing, which is an important part of the capital stock. It is discussed in the chapter on construction found in Part II of this Report.)

Capital in Manufacturing

The last published survey of capital in the manufacturing sector of Montana's economy is found in the U.S. Census of Manufactures for 1958. According to that survey, the gross value of the capital stock of manufacturing firms in Montana at the end of 1957 was $317 million.

This figure is the historical cost of facilities in use at the time of the survey, and does not allow for depreciation. The amount of capital per production worker in manufacturing was about $18,700, shown in table 6.13, well above the national average. In terms of this measure, Montana ranked fourth from the top among the 48 conterminous states (Alaska and Hawaii were not included).

After allowance for depreciation, the amount of capital per production worker in Montana's manufacturing sector was $9,300, and by this measure Montana again ranked fourth from the top. In both cases the states that ranked above Montana were Wyoming, Delaware, and Louisiana.

The conclusion that the amount of capital per worker in Montana's manufacturing sector at the end of 1957 was unusually high is reinforced by more detailed analysis that takes into account the peculiarities of the state's industrial composition. The amount of capital per worker was 46 percent above the amount that could have been expected if each industry in Montana had employed the national average amount of capital per worker for that industry.

Another detailed study based on the 1958 Census of Manufacturing data has found that, among 14 states that have large lumber and wood products industries, Montana ranked first in capital per man-hour worked in 1957. The net stock of capital per man-hour was only moderately higher in Montana than it was in the other western states included in the study, but it was generally two or three times as high as it was in the southern states.

TABLE 6.13

Gross and Net Capital Stock per Production Worker and Production Man-Hour
Forty-eight Conterminous States Ranked from High to Low by Gross Capital Stock
Per Production Worker, 1957

	Gross Capital Stock per Production Worker	Net Capital Stock per Production Worker	Net Capital Stock per Production Man-Hour		Gross Capital Stock per Production Worker	Net Capital Stock per Production Worker	Net Capital Stock per Production Man-Hour
1 Wyoming	$38,160	$17,640	$9.16	25 Iowa	$9,010	$4,520	$2.26
2 Louisiana	20,410	11,140	5.60	26 Minnesota	8,990	4,810	2.45
3 Delaware	20,120	12,150	6.36	27 Wisconsin	8,980	4,740	2.39
4 MONTANA	18,730	9,300	4.85	28 Colorado	8,850	4,560	2.24
5 Nevada	17,770	7,970	3.95	29 Kansas	8,780	4,400	2.19
6 West Virginia	17,600	7,820	4.08	30 California	8,730	4,590	2.32
7 Texas	16,610	8,800	4.42	31 Arkansas	8,460	4,720	2.43
8 Utah	15,880	8,610	4.42	32 Tennessee	8,300	4,020	2.08
9 Michigan	13,600	6,620	3.35	33 Virginia	8,200	3,810	1.96
10 Indiana	13,180	6,580	3.37	34 Connecticut	7,730	3,560	1.80
11 North Dakota	11,920	7,230	3.60	35 Missouri	7,340	3,670	1.92
12 Ohio	11,920	5,850	3.02	36 Maine	7,170	3,740	1.88
13 Washington	11,740	6,430	3.31	37 South Carolina	6,970	3,750	1.91
14 Idaho	10,720	4,620	2.38	38 Vermont	6,780	3,170	1.61
15 Maryland	10,650	5,510	2.85	39 Arizona	6,740	3,410	1.66
16 Oklahoma	10,270	4,710	2.38	40 New York	6,430	2,930	1.54
17 Pennsylvania	10,180	4,540	2.39	41 Georgia	6,190	3,420	1.78
18 Alabama	10,110	5,380	2.80	42 New Mexico	6,010	3,330	1.70
19 Florida	10,000	5,900	2.98	43 South Dakota	6,000	2,790	1.45
20 Kentucky	9,970	5,180	2.67	44 North Carolina	5,690	2,920	1.53
21 Illinois	9,820	4,980	2.55	45 Rhode Island	5,690	2,540	1.32
22 Nebraska	9,400	4,940	2.44	46 Massachusetts	5,680	2,740	1.41
23 New Jersey	9,330	4,460	2.28	47 Mississippi	5,030	2,570	1.33
24 Oregon	9,270	4,610	2.43	48 New Hampshire	4,630	2,290	1.17

Source: U.S. Department of Commerce, Bureau of the Census.

The above-average amount of capital per worker in Montana is no doubt closely related to the above-average hourly pay for manufacturing workers in the state, discussed earlier in this chapter. We cannot be sure, however, which is cause and which is effect. Higher than average wages which were due to, say, successful labor union activities, would give producers an incentive to substitute capital for labor. In other states, where wages were lower, less capital-intensive production methods would be followed.

On the other hand, large amounts of capital per worker would raise the productivity of labor, thereby increasing the amount that employers would be willing and able to pay for it. Thus, we cannot say whether relatively high wages have caused the high capital-worker ratio or have resulted from it.

The 1958 data are now 12 years old, and it would be useful to know how much change has occurred since then. More recent estimates of capital in Montana manufacturing that are available bring us only up to 1962, and are not as reliable as the data from the 1958 Census of Manufacturers. These later estimates are part of an unpublished study sponsored by the U.S. Department of Commerce. They indicate that the real gross stock of capital in Montana's manufacturing sector--that is, the gross (undepreciated) stock of capital after correction for price level changes--actually declined slightly between the end of 1957 and the end of 1962. Nationally, during the same period, real gross capital stock is estimated to have increased, but by only 6 percent.

After allowance for depreciation, Montana's real stock of capital in manufacturing is estimated to have fallen by about 17 percent over the same period. This compares with an increase, nationwide, of about 1 percent. For Montana, most of the decline appears to have been concentrated in buildings, as opposed to machinery and equipment.

During the same five years, Montana's manufacturing payrolls increased from 20.2 thousand workers to 22.0 thousand workers, or by about 9 percent. Nationally, manufacturing employment rose only about 6 percent, so that, although it appears that the real amount of capital per worker was declining both in Montana and across the nation, the decline was much more severe in Montana.

Most of the increase in manufacturing employment in Montana during those four years was in the lumber and wood products industry, where the ratio of capital to workers is lower than average. This would help explain the apparent decline in the ratio of capital to workers. Also, it should be kept in mind that these four years embraced two separate business recessions, both of which were characterized by very low levels of business spending on new plants and equipment.

All in all, we are not inclined to make very much of the apparent decline in Montana's advantage in terms of capital per worker during these five years. The period in question was too short, and too much influenced by recessions, to reflect any long-run trends. Moreover, we suspect that the data are not very accurate--such estimates are extremely hard to make without surveys.

It is important that if and when the Census of Manufactures compiles new figures on capital in Montana industries, they be studied carefully

to determine whether the state is, in fact, losing its edge in the amount of capital per worker.

Capital in Agriculture

Farming and ranching in Montana is also capital-intensive. According to the 1964 Census of Agriculture, there were 27,020 farms and ranches in the state. The average size of these establishments was 2,437 acres, nearly 7 times the average size of farms for the nation as a whole (see table 6.14). In 1950, the number of farms and ranches had been 35,085, and the average size had been 1,689 acres.

The average value of land and buildings per Montana farm in 1964 was $103,271, more than twice as high as the national average. Moreover, the average number of workers per farm in Montana was only about half as large as it was nationally, so that the value of land and buildings per worker was about 4 times higher in the state than it was nationally.

The large average size of farms and ranches in Montana, and the large amounts of machinery and equipment per farm worker, make output per agricultural worker much higher than the national average. As Chapter 2 pointed out, the unusually high income per worker in Montana agriculture reflects the return to land and capital equipment as well as the return to farm labor.

Rising land prices, together with falling, or in some cases, slowly rising farm product prices, have caused the rate of return per dollar value of land to decline sharply, unless the capital gains from

TABLE 6.14

Number, Size, and Value of Farms
Montana and United States, 1950 and 1964

	Montana		United States	
	1950	1964	1950	1964
Number of farms	35,085	27,020	5,388,437	3,157,857
Average size of farms (acres)	1688.7	2436.5	215.8	351.6
Value of land and building				
Average value per farm	$28,475	$103,271	$14,005	$50,646
Average value per acre	$ 16.86	$ 42.30	$ 64.97	$143.81

Source: U.S. Department of Commerce, Bureau of the Census.

the increase in land values are counted in calculating the rate of return. This phenomenon is by no means exclusive to Montana.

Sources of Capital

Partly because of the capital-intensive nature of manufacturing in the state, and partly because of the large amounts of farm capital per worker, Montana is a capital-importing state. That is, a large share of investment in Montana business and industry is financed from outside. Of course, Montanans also invest in industries outside the state, and we have no figures on which to base an estimate of the net inflow of investment funds. What is needed is an analysis of the inter-regional flow-of-funds and the regional pattern of investment in physical capital. Such an analysis would require an enormous input of time and money. It may, one day, be undertaken by the federal government. We are reasonably sure that if it is, it will show a large net investment in Montana from outside sources.

Much of the outside capital investment in Montana economy is financed through the national capital markets, including both the stock market and the bond market. In addition, major corporations that operate in the state obtain credit from banks and other institutional lenders in the financial centers of the country.

Another large share of investment in Montana business firms is financed directly out of the savings of owners of the enterprises, including both those owned outside the state and those owned domestically. This is particularly true for unincorporated businesses, but also applies to corporations.

Government loans provide significant amounts of capital, particularly in the agricultural sector through the various agencies of the Farm Credit Administration. As of June 30, 1969, Montana's nineteen Federal Land Bank Associations, which make long-term loans to farmers and ranchers, reported 6,140 loans outstanding, for a total amount of $170.7 million. The state's eleven Production Credit Associations, which supply short-term credit, reported $99.0 million in outstanding loan balances, representing 3,751 separate loans. The Spokane Bank for Cooperatives reported 28 outstanding loans to Montana cooperatives with a total value of $2.8 million.

Finally, Montana's private financial institutions provide large amounts of credit to Montana businesses and consumers. These institutions include commercial banks, savings and loan associations, and insurance companies.

At the end of 1968, Montana's insured commercial banks held total assets of nearly $1.6 billion. As table 6.15 indicates, these holdings included $182 million of securities issued by state and local governments, most of which were obligations of Montana governmental units.

Real estate loans (excluding loans secured by farmland) amounted to $189 million at Montana banks at the end of 1968. Loans to farmers were $198 million, and commercial and industrial loans amounted to $163 million. "All other" loans, a category that is heavily weighted with various types of loans to consumers, totaled $244.2 million (table 6.15).

Altogether, the amount of credit provided to Montana borrowers by the state's commercial banks probably came close to $1 billion by the end of 1968, or nearly $1,500 per capita.

TABLE 6.15

Assets and Deposits of all Insured Commercial Banks
Montana and United States, End of Year, 1950 and 1968
(Millions of Dollars)

	Montana		United States		Average Annual Percentage Rate of Change	
	1950	1968	1950	1968	Montana	United States
Total Assets	611.0	1,555.1	166,792	500,238	5.3	6.3
Cash, balances with other banks, and cash collection items	152.8	205.0	39,865	83,270	1.6	4.2
Securities--total	311.2	537.3	73,198	135,242	3.1	3.5
U.S. government	281.2	308.1	61,047	64,171	0.5	0.3
States and subdivisions	17.7	182.1	7,959	58,392	13.8	11.7
Other	12.3	47.1	4,192	12,679	7.7	6.3
Total loans, net of valuation reserves	142.8	777.4	51,809	265,982	9.9	9.5
Real estate, other than those secured by farmland	31.8	188.8	12,470	61,598	10.4	9.3
Loans to farmers	54.1	198.4	3,780	13,448	7.5	7.3
Commercial and industrial	25.9	162.7	21,808	98,161	10.7	8.7
All other loans	33.4	244.2	14,424	156,721	11.7	14.2
All other assets	4.2	35.5	1,921	15,744	12.6	12.4
Total Deposits	581.8	1,400.2	153,498	434,652	5.0	6.0
Demand deposits--total	484.1	676.1	117,007	228,725	1.9	3.8
Individuals, partnerships, and corporations	386.2	520.7	89,993	172,007	1.7	3.7
Government	59.5	106.2	10,710	21,893	3.3	4.1
Other	38.5	49.2	16,304	34,825	1.4	4.3
Time deposits--total	97.7	724.2	36,491	205,927	11.8	10.1
Individuals, partnerships, and corporations	97.1	676.8	34,582	180,506	11.4	9.6
Government	0.6	47.4	1,562	19,492	27.0	15.1
Other	*	*	347	5,929	---	17.1

Source: Federal Deposit Insurance Corporation, Call Reports.

*Less than $500,000

Note: Subcategories of Total Loans do not add to total because of deduction of valuation reserves from total.

Most of this lending was financed by bank deposits held by Montana citizens and business firms. At the end of 1968, deposits at commercial banks in Montana were $1,400 million. Of these, $676 million were demand deposits, and $724 million were time deposits. Unlike demand deposits, time deposits earn interest for their holders. Private depositors (individuals, partnerships, and corporations) accounted for nearly $1,200 million of total deposits; federal, state, and local governments accounted for a little over $150 million.

The state's commercial banking system provides the most important single conduit for channeling the accumulated savings and liquid asset holdings of Montana citizens, businesses, and governmental units to in-state borrowers.

The aggregate data in table 6.15 indicate that Montana's banks have been able to provide a very substantial increase in credit since 1950. Total assets of banks in Montana increased at an average annual rate of 5.3 percent between the end of 1950 and the end of 1968, somewhat below the 6.3 percent average annual rate of growth for banks nationwide. But most types of lending increased faster in Montana.

Holdings of state and local government securities increased at an average annual rate of 13.8 percent over the 18-year period, compared with an annual rate of only 11.7 percent nationally. Real estate loans of Montana banks increased an average of 10.4 percent per year, compared with a 9.3 percent average growth rate for the nation as a whole. Farm loans, which are much more important at Montana's banks than they are nationally, rose at an average annual rate of 7.5 percent in Montana,

slightly faster than the national average. Business loans rose an average of 10.7 percent per year at Montana banks, a full 2 percentage points above the national rate.

Most of the growth in bank credit was made possible by deposit increases. Between the end of 1950 and the end of 1968, total deposits increased at an average annual rate of 5.0 percent compared with a growth rate of 6.0 percent nationally. Both nationally and in Montana, most of the growth came from time deposits. At Montana's banks, time deposits increased $627 million between the end of 1950 and the end of 1968. Competition among banks for time deposits has been intense in recent years, and the data in table 6.15 seem to indicate that Montana's banks have fared well.

At the end of 1968, total bank deposits per capita in Montana amounted to $2,012, 6 percent below the national average of $2,143. The ratio of bank deposits to personal income, however, was 0.69 percent for the state of Montana, slightly higher than the 0.64 percent for the nation as a whole.

Despite the apparent ability of Montana's commercial banks to compete successfully in the markets for deposits, one is told constantly that there is a shortage of bank credit in the state. At the time of this writing, there is a major "shortage of credit" nationally, judging from the high levels of interest rates. But the data presented above, although they are by no means definitive, do not suggest that there is at work some fundamental, pernicious, and unjust force that drains Montana money to the financial centers of the nation. On the

other hand, neither do these data prove that the share of national capital that is found in Montana is adequate.

Another important set of financial institutions in Montana is savings and loan associations. Savings and loan associations lend primarily in the residential mortgage market. At the end of 1968, Montana's 16 savings and loan associations held total assets of $241 million, or about $346 for every person in the state. This compared with a national average of $754 per capita. Only eight states ranked below Montana by this measure, and per capita assets of savings and loan associations were higher in all neighboring states.

Is There a Capital Shortage?

There is a substantial body of opinion that Montana's economic woes spring from a shortage of capital. This view has deep, traditional roots. It is an important part of the philosophy of populism, and there is some evidence to support it. For example, the average rate of interest on bank loans in Montana is somewhat above the corresponding figure for the nation as a whole. This, on the face of it, seems to indicate a shortage of capital. But other data, including those on capital investment in Montana's manufacturing sector, seem to conflict with the hypothesis of a capital shortage.

Looked at from a different point of view, however, there is an obvious capital shortage. The growth of primary employment must accelerate if the state is to come even close to providing enough jobs to absorb the "natural" growth of its labor force. And accelerated growth of primary employment is more or less synonymous with stepped-up

investment in production facilities in Montana. If narrowing the "job gap" projected in Chapter 4 is going to be an objective of state policy, then so, by definition, is attracting new capital. But to do this on any large scale would require that the prospective rate of return to investment in Montana be at least as great as the prospective rate of return in other regions. That is, policy must aim at making investment in the state more attractive--not an easy task.

CHAPTER 7

Pollution and the Economics of Environmental Quality Control

The preservation and improvement of the environment is perhaps the most disputed issue surrounding the formulation and implementation of state economic development policies. The problem is by no means confined to Montana; in many respects it appears to be more pressing in other places. But as surely as Montana has less income per capita than the national average, so does it have more environment per capita, including a large share of the nation's most beautiful outdoors, and so, too, will the environmental controversy thrive.

Moreover, Montana industry is not representative of the national average. The state's extractive industries--mining and metal manufacture, and forest products--cause enormous pollution problems. Agriculture, too, creates problems as new fertilizers and insecticides increase both output and pollution. The cattle feedlot business, which may well grow rapidly in the next few years, also poses a pollution threat.

On top of these and other industrial sources of pollution, substantial inroads on the environment come from consumers--driving cars, throwing out beer and pop cans, and using countless detergents, sprays, and other twentieth century amenities.

People sometimes argue that today's concern with pollution, and environmental problems generally, is only a flash in the pan. Man did not just suddenly start to foul the environment. Why should he suddenly have to do something about it? They also seem to feel that in so big a state, a few beer cans won't hurt, and that a "big sky" can more than afford a stinking chimney or two.

We believe, however, that those who expect concern over the environment to fade away are quite wrong. Two major explanations can be offered for the seemingly sudden emergence of widespread concern with this problem. Both are related to the explosion of technology. First, the postwar American economy has seen, in the late 1960s, per capita real income rise to a level more than twice as high as it was just before World War II. This same revolution has brought a quantum leap in wastes and residues, and has produced synthetic materials that defy satisfactory disposal.

Second, the same technological progress has made the society affluent. Preservation of the environment is a "luxury good" that can legitimately assume high priority now that most people have come so far from having to worry about subsistence. After all, high incomes are supposed to facilitate living the "good life," and a high quality environment is surely an essential ingredient.

We believe, then, that concern over the environment is here to stay. It should and will play a key role in the evolution of state economic planning and development.

The challenges for environmental protection are enormous, and the possibilities for failure are significant. This study is not aimed at solving pollution or environmental problems generally. It does undertake the more modest mission of pointing up serious economic problems that face the state. The controversy over the environment is certain to become one of those problems.

This chapter takes a brief look at the history of pollution in Montana, outlines the findings of recent studies, and suggests a way of looking at the economics of environmental protection. The problem of relating state planning policy to environmental protection is discussed in Chapter 1.

POLLUTION IS NOT NEW

Neither environmental pollution nor public concern about it are new to Montana. Water and air pollution have caused problems for people at least since the 1860s, when large scale mining operations were introduced. Professor K. Ross Toole, a University of Montana historian who will discuss this history in a forthcoming book, has kindly given us access to some of his findings.

During the state constitutional convention in 1889, air pollution figured in the debate over the proper location of the state capital. William A. Clark, one of the "copper kings," argued that Butte's air pollution was a positive virtue. According to the Proceedings and Debates of the Constitutional Convention, he said:

> I must say that the ladies are very fond of this smoky city, as it is sometimes called, because there is just enough arsenic there to give them a beautiful complexion, and that is the reason the ladies of Butte are renowned whereever [sic] they go for their beautiful complexions. . . . Now, talking about this smoke, I believe there are times when there is smoke settling

> over the city, but I say it would be a great deal better for other cities in the territory if they had more smoke and less diptheria and other diseases. It has been believed by all the physicians of Butte that the smoke that sometimes prevails there is a disinfectant, and destroys the microbes that constitute the germs of disease . . . it would be a great advantage for other cities, to have a little more smoke and business activity and less disease. . . .

Water pollution, too, was a problem during the last century, though we know of no countervailing benefits attributed to it. Water pumped from the mines was laden with dissolved copper and other metals, and killed fish in the Clark Fork for over a hundred miles downstream. Fortunately for the fish, in the 1879s Jim Ledford accidentally discovered that water from the mines dissolved iron and left almost pure copper in its place. The process, which became known as leaching, led to elimination of some of the worst of the stream pollution.

Pollution led to much litigation too. In 1905 Fred J. Bliss, a Deer Lodge Valley rancher, sued to stop the Anaconda and Washoe smelters from emitting arsenic and other pollutants into the valley's atmosphere, damaging ranch lands and property. The request was denied in 1909, and an appeal to the circuit court was lost in 1911. The courts reasoned that closing the smelter would do irreparable harm to Anaconda and Butte. Therefore, the smelters should only be legally required to reduce the pollution as much as the available technology permitted.

In 1903, another Deer Lodge rancher, Hugh Magone, brought suit against the Anaconda smelter for releasing wastes into the Clark Fork River. He claimed that the pollution reduced the value of the water for irrigation, and consequently lowered the value of his land. The court's decision, which came in 1910, held that the mining companies were liable for some damage, but, as long as they had a prior right, they were entitled to use the water even if pollution resulted.

The courts did not always fail to act. In 1891, mining companies were enjoined from open-pit roasting of ores after an unusually large-scale operation of the Boston and Montana Company had resulted in the deaths of 15 people in 48 hours and violent illness for hundreds of others.

AIR POLLUTION IN MONTANA TODAY

Although concern with pollution is not new, there can be no doubt that intervention to control and reduce it is on the upswing. Problems of air and water pollution are, at present, serious in several areas of the state. Here we survey what is known about the problems, starting with air pollution.

Frequent temperature inversions in the mountain valleys of western Montana, along with Utah, much of Nevada and Idaho, and part of Wyoming, turn the areas into what is classified as a "frequent smog zone." Because of the example of Los Angeles, many people associate heavy smog with high population density, but the two are not necessarily interdependent. Many areas with little smog have high concentrations of population and polluting industries, but are fortunate enough to have a climate that disperses the pollutants. Helena has a greater problem than Great Falls, and Missoula has a greater problem than Helena.

The first major study of air pollution in Montana, conducted by the State Board of Health, covered the period from July 1961 through July 1962. Among other things, the 1961-1962 study found that the total suspended particulate count exceeded the level that was later adopted as the state standard for suspended particulates (75 micrograms per cubic meter of air) in five of the seven Montana cities studied. The five were Anaconda,

Billings, Butte, Libby and Missoula (see figure 7.1). Only Great Falls and Helena met what was later to become the state standard for suspended particulates.

Figure 7.2 shows the findings with respect to benzo(a)pyrene (BaP) in the air of Montana cities. BaP is one of the most powerful carcinogens in cigarette smoke. The levels for Libby and Missoula were found to be especially high. Figure 7.3 shows the arsenic content of the air in the same seven cities. Both Butte and Anaconda--especially Anaconda--showed up with high concentrations.

A later study by the Board of Health indicated that the death rate from lung cancer between 1955 and 1965 was unusually high for several Montana counties with known air pollution problems, including Deer Lodge, Powell, and Silver Bow Counties. The data are by no means definitive, however, since high rates of death from lung cancer were also found in some counties where air pollution does not appear to be serious. But neither are they reassuring, nor should they be ignored.

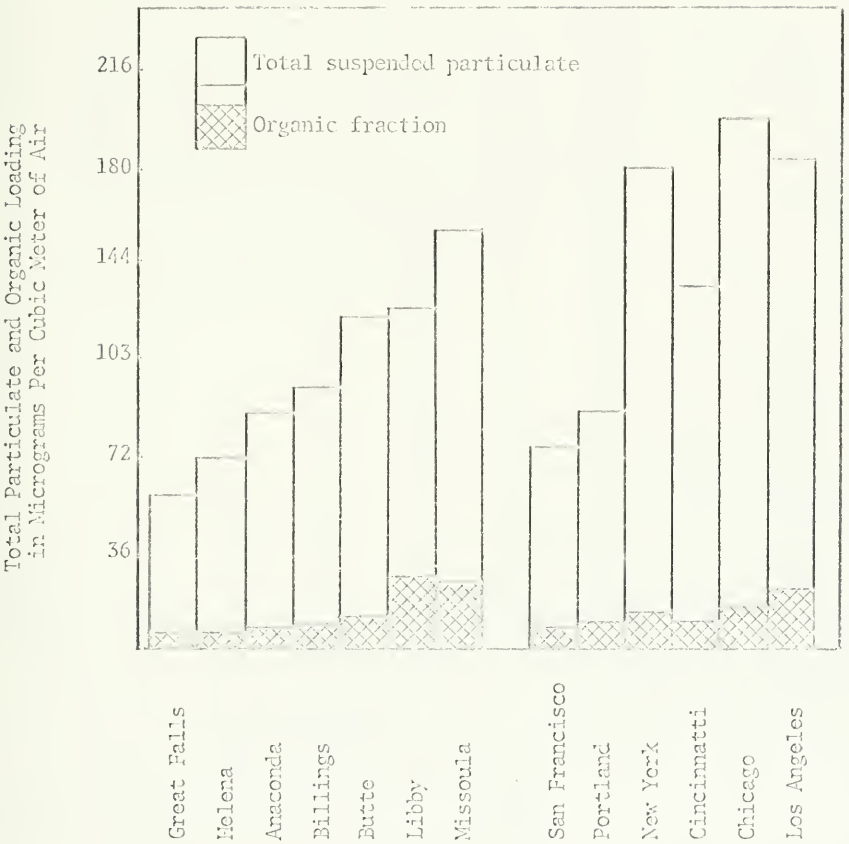
Most subsequent studies of air pollution have concentrated on particular areas of the state. The studies summarized below do not cover every area of the state that has an air pollution problem. They do, however, deal with the areas that appear to have had the greatest problems.

Flathead Valley

A Board of Health study in 1963-1964 concluded that the Flathead Valley has "a strong potential for the development of a serious air pollution situation." Slash and stubble burning, the burning of wood wastes, and industrial pollution in the Columbia Falls area caused this concern.

FIGURE 7.1

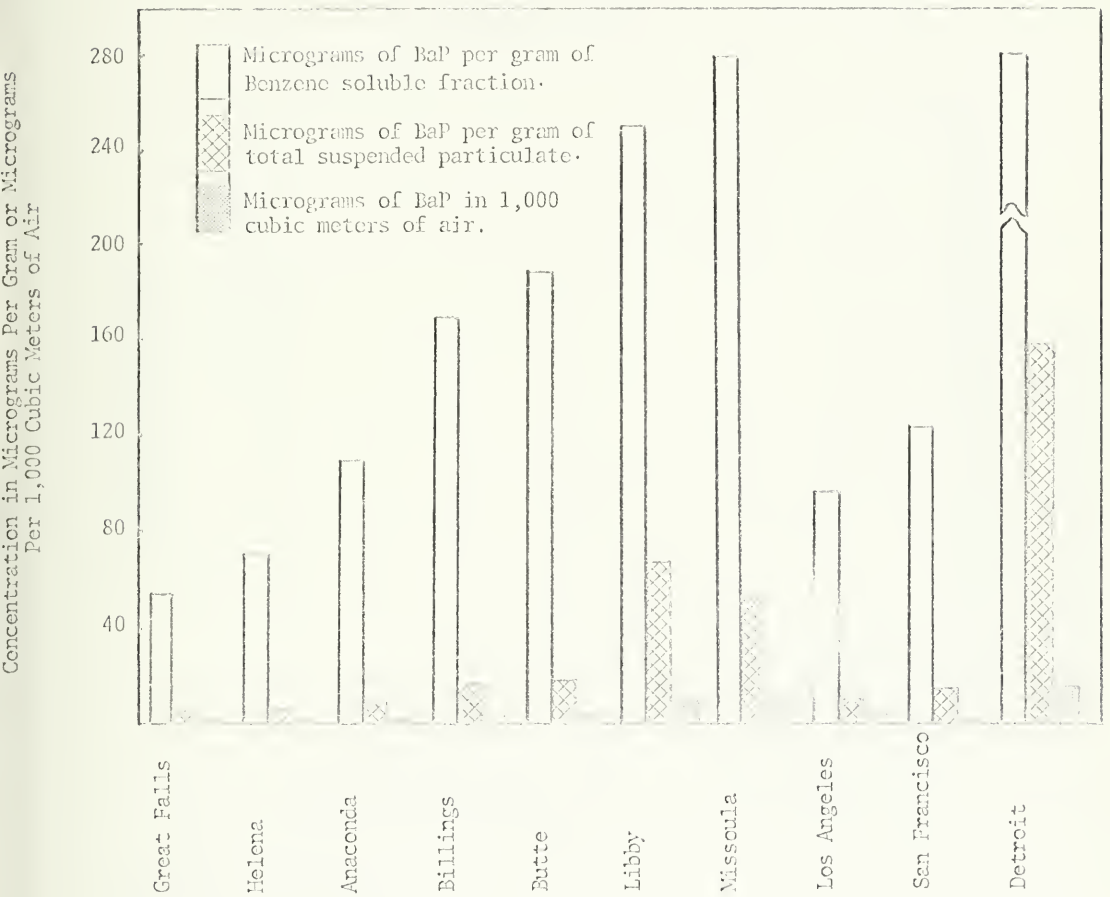
Average Total Suspended Particulate in the Air and
Organic Fraction of Total Suspended Particulate
Seven Montana Cities and Six Comparison United State Cities, June 1961-July 1962



Source: Montana State Board of Health.

FIGURE 7.2

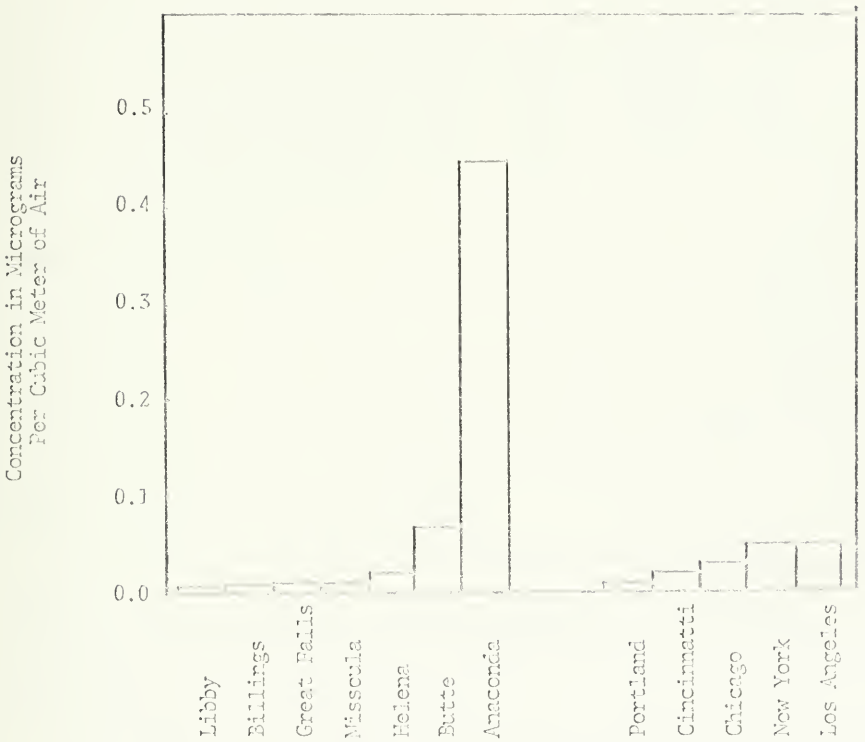
Benzo(a)pyrene (BaP) Content of Air
Seven Montana Cities and Three Comparison United States Cities
July 1961-December 1961



Source: Montana State Board of Health

FIGURE 7.3

Average Arsenic Content in the Air
Seven Montana Cities and Five Comparison United States Cities
June 1961-July 1962



Source: Montana State Board of Health.

The problem of fluoride emissions from the aluminum works at Columbia Falls has recently received much attention. The 1963-1964 study found a suspended particulate count for Columbia Falls of 104 micrograms per cubic meter of air--29 micrograms higher than the state standard.

More recently, Dr. C. C. Gordon, a botanist at the University of Montana, studied the Columbia Falls area for possible fluoride damage from the aluminum plant there. He measured fluoride levels in grass, lettuce, conifer needles, and the femurs (upper hind leg bones) of rodents. Dr. Gordon reported that "the needle tissues from the Columbia Falls collections exhibit the disease syndrome typical of hydrogen fluoride exposure"; that the lettuce analyzed had a considerably higher fluoride content than recommended by the Food and Drug Administration (but that the control lettuce sample from Missoula also exceeded the recommended maximum); and that grass collected from the area of the smelter exceeded the recommended fluoride level by amounts generally related to the distance and direction from the smelter.

Perhaps the most arresting of Dr. Gordon's findings were those having to do with the fluoride content of rodent femurs. Rodents collected in the Columbia Falls area had accumulated nearly 20 times as much fluoride as the control animals.

The results of Dr. Gordon's study indicate that the emissions from the smelter are killing or endangering nearby trees, including some in Glacier Park, and causing a build-up of fluorides in the immediate environment sufficient to produce high fluoride levels in rodents and probably other animals. We are not equipped to evaluate the implications of these findings for human or animal health, but the information is not reassuring.

Laurel-Billings

The Montana State Department of Health and the Billings Health Department studied air pollution in the Laurel-Billings area during 1966-1967. They found that suspended particulate levels for the area were approaching the maximum as set by the state standard, which suggests that suspended particulate matter could easily become a problem in the future. Sulfur dioxide emitted by refineries in the area was the only immediate air pollution problem discovered, although the fluoride level at some places was uncomfortably high, and might become a problem later.

Deer Lodge Valley

Between August 1965 and June 1966, the State Board of Health studied air pollution in the Deer Lodge Valley. Total suspended particulate levels were found to be excessive at Anaconda and Garrison. The level of arsenic in the air at Anaconda, which was found to be so high in the tests of 1961-1962, was again higher than at the other stations in the valley. Fluorides in the air were excessive at Garrison, but not at the other stations. Anaconda had a level of sulfur dioxide 30 percent higher than had been found in the 1961-1962 study.

Temperature inversions were frequent in the Deer Lodge Valley (45 to 55 percent of the total hours for the winter season), intensifying pollution from sources singled out by the report: the smelting and refining operations at Anaconda, the phosphate plant at Garrison, and the burning of agricultural and lumber waste.

It might be noted that Deer Lodge County had 46.2 deaths from cancer of the lung per 100,000 population during 1955-1965, the highest for any county in the state.

In 1966, ranchers in the Garrison area were awarded $123,000 damages against the phosphate company whose plant is located at Garrison. The plant has been closed several times because of pollution problems during the seven years it has been in operation.

The effects of air pollution around the Garrison plant have been studied in detail by Dr. Gordon over a period of three years. In three unpublished reports, dated from July 1967 through February 1970, and in an earlier article published in the October 30, 1966, Missoulian, Dr. Gordon produced data indicating that the Garrison plant emits large amounts of fluoride material with consequent damage to trees over an ever-increasing area surrounding the plant. As late as 1969, efforts of the company to control fluoride emission had not, according to Dr. Gordon, resulted in a decline in fluroide accumulations in plant life.

Dr. Gordon also found concentrations of fluoride substantially over the recommended levels in grasses, conifer needles, and rodent femurs near the Cominco American phosphate plant in the Douglas Creek area. No disease symptoms were found in the conifer samples--fluoride was in the form of a dust which clung to the needles and was not absorbed by the tree. However, the rodents studied showed consistently high levels of fluoride, presumably because they consumed the fluoride dust along with the plants they ate. The plant closed in 1968, however, and an investigation by Dr. Gordon in early 1970 showed that newly-grown forage does not show excessive fluoride.

Helena Valley

The State Department of Health studied air pollution problems in the Helena-East Helena area between October 1965 and October 1968. It found that the area had a general air pollution problem, which was especially

serious at East Helena. The major specific problem was the concentration of sulfur dioxide in the air. The fluoride content of the air was also found to be above the state standards, although grass in the area did not show high fluoride levels.

A separate report, again by Dr. Gordon, on the effects of smelter emissions found sulfur dioxide damage to conifer needles in the East Helena area. The extent of damage, it appears, varied with the level of operations at the smelter, and officials of the American Smelting and Refining Company have indicated that they do not believe that present or contemplated levels of operations will cause serious damage.

Missoula

Air pollution has been a continuing problem over the last decade in and around Missoula. There is some indication that control measures adopted by industry in recent years are having the intended effects. Total suspended particulate has not been substantially reduced, however, and is still often far above the state standard of 75 micrograms per cubic meter of air. But the organic fraction of the suspended particulates (which includes a number of carcinogens, or cancer-producing agents) has decreased.

One of the main sources of pollution in Missoula is the burning of wood and other organic wastes. Another is the operation of the pulp mill west of town. The sulfate fraction of Missoula air still considerably exceeds the state ambient air standard. It will probably continue to do so until the pulp mill completes its air pollution control program--in 1972, if all goes as planned. Another contribution to the particulate pollution problem is the dust from city and county streets, which poses an interesting question: will the people themselves choose to underwrite a program to undo the pollution they cause?

Townsend-Three Forks, the Gallatin Valley, and West Yellowstone

The State Board of Health conducted a study of air pollution in this area from November 1967 to November 1968. The findings of the study indicated that air pollution there is less serious than it is in many other places in the state. But some problems were discovered. The report urged that sources of dust be better controlled, and that some burning practices, which had resulted in high particulate levels in parts of the area, be altered.

Montana's Air Pollution Control Law

Chapter 313 of the Revised Codes of Montana, which provides the legal basis for air pollution control in Montana calls for:

> . . . such levels of air quality as will protect human health and safety, and to the greatest degree practicable, prevent injury to plant and animal life and property, foster the comfort and convenience of the people, and promote the economic and social development of this state.

The act provides for a statewide program of air pollution control under the direction of the Montana State Board of Health, and confers on the Board power to establish ambient air quality standards and emission control standards. Permits from the Board are required for installing any new machinery or equipment which could result in air pollution, and the Board has power to make inspections to insure adherence to the standards. The law also provides for local air pollution control programs, provided that the local standards are as much or more stringent and inclusive as the state standards. To date, three communities in the state--Missoula, Billings, and most recently, Great Falls--have established local control programs.

In May 1967, the State Board of Health adopted ambient air standards for various sulfur compounds, airborne particulate, fluoride, lead and beryllium. Adoption of standards for such pollutants as arsenic, carbon monoxide, oxidants, and nitrogen oxide has been postponed pending further study. In November 1968, the Board adopted regulations which set restrictions on emissions of pollutants for various activities and processes. Both the ambient air standards and the emission control standards were drawn from the standards established for air pollution in other areas of the country and from recommendations of the federal government. Some were adopted despite considerable opposition from affected industries.

To date, the work of both state and local health boards has consisted mainly of studying pollution problems, and working with polluters to bring about conformance with the standards; they are also empowered to grant variances from standards, provided they feel a violator is making sufficient effort to comply with regulations. One major problem that has yet to be resolved is where, and under what restrictions, new electric steam generating plants can be located.

WATER POLLUTION

Given its limited funds, the State Department of Health has been unable to conduct extensive studies of water pollution except for the Yellowstone River. Several investigations of pollution of the Yellowstone River have been carried out.

Water quality in the Billings area has shown steady improvement since a 1956 report concluded that:

> Pollution of the river is so excessive that an immediate and aggressive program of abatement is fully warranted. Adequate waste control can be provided through methods already demonstrated to be wholly effective.

A progress report in 1965 pointed to some continuing problems--particularly from oil refineries, sugar refineries, and packing plants. The oil refineries were releasing phenolic compounds, oil, and organic wastes. The sugar refineries, meat packing plants, and domestic sewers were releasing organic wastes. Since then, considerable progress has been made in dealing with these problems--especially those caused by meat packing plants and oil refineries. According to a 1967 report:

> It is quite apparent that if continued improvement to the waste treatment facilities in the Laurel-Billings area is maintained, the river water quality will continue to meet the standards established by the Montana Water Pollution Council as the area grows in population and industry.

The main remaining problem in the Yellowstone drainage appears to be agricultural pollution caused by draining and irrigation of areas treated with insecticides and weed control agents.

Problems in the rest of the Missouri River drainage basin have received less study. The main pollution sources are probably agricultural. At this time, however, water pollution in the area is considered minimal, and the problems that do exist are localized.

The Columbia River drainage basin has only minimal or localized pollution problems, except at the headwaters. The main potential pollution sources are the copper operations in Butte and Anaconda, and wood and paper products plants at Bonner and Missoula. Further study by the Board of Health is expected to show whether these or other operations in the basin are seriously polluting the river. The relationship of logging practices to water pollution will also be investigated.

At one time, mining and processing wastes from Butte and Anaconda posed a severe problem for the Clark Fork River. The problem has diminished

considerably over the last 20 years, however, and the main problems now involve spillover from settling ponds during wind storms, and provision for continued operation of water cleaning equipment during strikes.

On the sewage front, during the 1960s, 102 domestic sewage systems in the state improved their treatment facilities at a total cost of about $15,000,000. During the same period, almost the same amount was invested by industry to control water pollution.

The state's Water Pollution Control Law was passed in 1955. It empowered the Board of Health to set water quality standards for the different waterways in Montana, and to work with polluters to bring about conformance to the standards.

Policies with respect to setting new air and water pollution regulations and granting variances from these standards will, in the next few years, have important implications for the quality of the environment, and for the rate and direction of Montana's economic development. There is a conflict between business profitability and environmental quality, and this conflict is not about to disappear. The following section takes a look at the conflict in terms of its economic aspects.

WHAT ECONOMICS HAS TO SAY

The rational control of air and water pollution, or, more generally, protection of the environment, is enormously complex. Simply to comprehend the dimensions of the problem requires knowledge derived from many sciences--industrial technology, meteorology, medicine, sociology, psychology, and ecology, to mention a few. It also requires comprehension of a nonscientific sort, having to do with morality and human values. But ultimately the

question of how we deal with this problem is an economic one. That is, in the final analysis, it comes down to a question of whether a given reduction of some specific type of pollution is worth what it will cost--that is, what must be given up to get it. Put the other way around, the question is whether gains from unregulated pollution, in the form of reduced production costs for business firms and lower living costs for consumers, are worth the sacrifice of a clean environment they entail.

Posed in either of these ways, the problem is an economic one. At bottom, economics is concerned with the allocation of scarce resources among competing uses. Economic analysis is capable of shedding considerable light on the process by which it is decided whether society's scarce resources should be used to produce, say, refrigerators or automobiles.

It can be shown that insofar as individuals are the best judges of their own welfare, the decision as to how many autos and how many refrigerators should be produced is made by a free market--that is, by a market unregulated either by government or by monopoly power. If people want more autos and less refrigerators, their desires will be registered by a shift of demand--willingness to buy--from one to the other, and production, guided by the search for profit, will follow. Conflicts of interest between automobile producers and refrigerator producers, or between producers and consumers, are settled impersonally in the market. It is possible to show that under ideal conditions the market solution will be one from which it will be impossible to depart, so as to make some person or persons better off, without making some other person or persons worse off. In this sense, there is no waste or inefficiency.

Of course, these ideal conditions are never fully realized. But the virtue of a free market system, as Adam Smith showed in the eighteenth century, is that it tends to generate efficient solutions. This justifies social policy aimed at promoting free private markets as a way of reconciling competing interests and allocating scarce resources.

An essential ingredient of the market process is private property and the profit motive. Everything scarce has a price tag that reflects its value in the market--its value to others. If a refrigerator company (or an automobile company) is to obtain sheet steel, copper wire, or asbestos, it must be prepared to pay for it. To do so, it must be able to recover the costs by selling its product. Ultimately, the user of the product--the buyer--must be willing to pay for what he uses.

A clean environment is also a valuable commodity. Its use ought to be governed by the same rules. But to a large extent, the environment is not subject to the laws of the market. A business firm, or an automobile driver, or a family sitting around the fireplace, can pollute clean air that has value to other people without paying for the harm done to others--that is, for "using up" a scarce resource. There is no market for air in which the interests of persons who are harmed can be represented. If there were, polluters would have to buy the right to use up clean air that is valuable to others, just as refrigerator manufacturers have to buy the right to use up sheet steel and asbestos. The same problem applies to clean water and other elements of the environment.

A not surprising result of the fact that polluters do not have to pay for the damage they do is that we collectively pollute the air and water, and abuse the environment generally, more than we should. There is thus an

a priori case for government intervention designed to do what private property rights and a private market would do if only there were private markets for the valuable commodities involved. If the damage from pollution is small, intervention may not be justified. But if it is substantial, not to intervene is a wasteful and possibly dangerous course. Nonintervention means that there is no assurance, or even presumption, that polluters will take into account the costs of their polluting activities. It amounts to subsidizing pollution.

Some hold that polluters are misanthropes--that if they were not, they would run their businesses in the public interest. These objectors, presumably, drive electric cars, don't smoke, eschew charcoal broilers, wood-burning fireplaces and campfires, never burn their food, and do not generate sewage.

One shudders, however, to contemplate the chaos that would emerge were all businessmen to renounce the profit motive in favor of their personal conceptions of public interest. There is, in any event, little risk that they will.

Pollution and other forms of environmental degradation fall into a general class of problems labeled "externalities" by economists. The actions of a polluter have side effects that are said to be external to him (or his business) because he is not required to take them into account. A polluter regards as "free" what is really scarce, for the simple reason that he doesn't have to pay for it.

The ideal solution would require every polluter to take into account the costs his activity imposes on others, by requiring him to pay for the social costs--or damages--his activities entail. Just as he must reckon the cost of the scarce raw materials he processes, so, in principle, should

the industrial polluter be required to reckon with the costs his pollution imposes on others. The same is true for consumers in their role as polluters. Some environmentalist groups now advocate this course, and state planners and policy-makers would be well advised to give it some thought.

Such payment would induce polluters to seek ways of producing and consuming that cause less pollution, on the one hand, and would raise the cost of producing goods that entail pollution on the other. The latter effect will cause the prices of these goods to rise, and lead to curtailed sales and production, and thereby shift some productive resources away from the polluting industries. In either case, the result would be less pollution because the costs of pollution were recognized and had to be taken into account by polluters.

It is on this point, of course, that the controversy centers. If pollution-reduction were costless, presumably no one would fight it. But it is not costless. It leads to higher costs, reflected in higher product prices, reduced markets, and reduced production. How much higher costs and prices, and how much lower sales and production, are factual questions whose answers can be found only by hard analysis. They are not questions that can be answered through armchair theorizing or environmental exhortation, but experience indicates that these factual questions can be at least illuminated by well-designed research efforts conducted in the spirit of scientific inquiry.

Clearly the owners of businesses that pollute are harmed by a change of rules that requires them to pay for the damage they do or at least pay to eliminate it. But others are harmed as well. Persons who work for these businesses, and those who sell them materials, equipment, and supplies may be

harmed if production is cut back. Less clear, but still present, is potential loss of income to those who make their living selling goods and services to the people who earn their livelihoods in the polluting industry. (Recall that, for every job in a primary industry, Montana has more than two workers in derivative industries.)

The specter raised by pollution control then, is the specter of reduced income. Some persons contend that by curtailing pollution we would make Montana so attractive to "clean" industries that employment and income would actually rise. They assert this to be the case, and they may be right, but the question is one of fact, not theory. Such factual information is not easy to come by.

Our own guess, and it is only a guess, is that meaningful pollution control will, at least for several years, reduce total money incomes of Montanans and of persons out of the state who have an ownership stake in Montana business. In return, Montanans will have cleaner air. In the long-run, on the other hand, an opposite result might emerge. The day may come when Montana's remoteness from markets does not militate against rapid growth, perhaps because the state's relative attractiveness as a place to work and live will make it easier for business firms to attract and hold workers here than in the more crowded areas that are close to markets. Preservation of the environment would, of course, make this more likely.

If our guess is correct, however, Montanans cannot have both more money income and more clean air and water, at least in the short-run. But money income is not the only income, at least not as economists see it. The ultimate aim of economic activity is to promote the well-being of people. Usually an increase in money income means an increase in well-being. But

because clean air and water are not bought and sold in the market, the gain in well-being that would result from reducing pollution does not show up as increased money income.

Once it is recognized that a cleaner environment is valuable, it should be clear that it is possible for Montanans to be better off if they trade a cleaner environment for money income. It is equally clear, however, that whether there is a net gain depends on how much people value the clean environment they get, as opposed to the money income that is lost. In general, it is to be expected that each successive dose of pollution reduction will be worth less to people than the one that went before, while each additional loss of money income will hurt more than the one before. This leads to the conclusion that there is some "optimal" combination of money income and pollution control, and that pollution control should be carried up to, but not beyond, this level. This is the "ideal" solution.

Not only must some things be sacrificed to reduce pollution; the sacrifices are not evenly borne. As Dr. Richard Shannon, a University of Montana economist, pointed out in a lecture given this spring:

> It is no accident that at this stage of our economic and social progress in the United States only certain groups in our society are moved to action relative to pollution. Those who have the least to lose economically provide the vanguard, and the lines of supporters are in most areas not deep. The middle income group, salaried employees (largely employees of governmental or semi-private nonindustrial concerns) and professional people lead the fight showing both public and private concern. These are the recent benefactors of affluence and income security--the new semi-leisure class. Control of pollution is not apt to immediately alter their income position.

It seems safe to say that no controls at all is not the ideal solution. Neither is the absolute prohibition of any activity that fouls the environment. The "ideal" solution lies somewhere in between.

The state's standards meet the test of being "somewhere in between." But somewhere is a very elastic term, and we need a lot more information before we conclude they are anywhere near the right solution.

Clearly the "ideal" solution is not discoverable with today's knowledge. To discover it, the governmental agency set up to control pollution would have the gigantic task of determining what is, for other commodities, determined in markets: the value of clean air, or conversely, the loss of well-being occasioned by dirty air. This determination is, of course, enormously complex.

Nonetheless, proper evaluation of any list of commandments such as the state's present standards or proposed new ones implicitly requires knowledge about both the value of the benefits from reduced pollution and the costs of the most efficient methods of control. It requires, that is, determining whether the commandments, when in force, will push us closer to "ideal" solution. Given the present state of knowledge, the state standards must be regarded as a stab--not an altogether blind one, but a stab--in the right general direction.

A recent issue of Fortune, devoted to the environment, points to numerous advances that are being made in dealing with pollution. Many have resulted from economists working with benefit-cost analysis. One ongoing study approaches the question by measuring the effects of pollution on property values in residential neighborhoods in the Chicago area. This permits an assessment of the cost as it is felt by the people who would have to bear it. Professor Thomas D. Crocker, one of the investigators involved in the Chicago study, has concluded on the basis of earlier work that pollution from industrial dusts alone causes about $600 million damage

each year in the nation's 85 major metropolitan areas. Engineering studies, he points out, indicate that 95 percent of such pollution could be wiped out by 1975 if industries would invest a billion dollars in control equipment. This looks like a bargain, but it is one that the free market, left alone, would pass up. Studies such as this hold considerable promise for guiding a rational antipollution effort.

The public interest demands that more ambitious analysis of the costs and gains of pollution control be undertaken in conjunction with the state's continuing efforts to deal with this very serious problem affecting the well-being of Montanans--present and future. Research into the economics of pollution control is not easy, and results will come only slowly. But the recent contributions of cost-benefit analysis are impressive, and offer much hope to those who seek public policies capable of helping Montana make the most intelligent use of her scarce resources.

Both the University of Montana and Montana State University have on their faculties persons qualified in the area of benefit-cost analysis. More use should be made of these talents in the formulation and execution of state policies, just as use is beginning to be made of scientific expertise in determining the physical effects of pollution and on methods of controlling it.

CHAPTER 8

The Natural Setting:

Climate, Outdoor Recreational Opportunity, and the Problems of Sparse Population

There are aspects of life in Montana, or any other state, that are in themselves essentially nonpecuniary, but nonetheless figure into the well-being of people who live here, and help explain their economic behavior. Does the climate of the state affect the out-migration of workers, or deter people from moving into Montana? Do the recreation attractions hold some back from leaving who would otherwise depart in search of better pay? Given the present state of knowledge, one can only look at the limited information and speculate.

Montana's natural setting--isolated, rugged, thinly-populated--is the result of a combination of geographical and historical factors. The western states in general are more thinly populated than the eastern--they are relatively recently settled, have many areas unsuited to farming, and they became states after the movement toward conservation was well begun. Montana therefore has more than its share of

natural recreational areas. This fact could be a prime attraction for migrants as well as visitors, except for myths about Montana's climate--myths that will be discussed in detail in this chapter.

Set against Montana's natural assets of recreation and uncrowded living are the problems of providing social services, social contact, and culture to a widespread population at a cost that is not prohibitive. The term, "social cost of space," as employed by Carl Kraenzel, aids one in understanding the impact of Montana's wide open spaces and low population density. In 1969 the state's population density was 4.8 people per square mile--the fourth lowest in the United States. Medical treatment, education, and other services are often more costly and time-consuming to obtain than in urban centers, and even social contact requires more effort. Fine arts productions can be out of convenient reach.

This chapter is a summary of a series of staff studies by Robert J. Bigart and a supplementary essay on fine arts in Montana by Edward G. Groenhout.

MONTANA CLIMATE AND OUTDOOR RECREATIONAL OPPORTUNITIES

Climate

As a scenic and recreation area, Montana has a lot to offer that cannot be provided by the large urban areas of the nation. However, even the sporting man has to consider the year-round climate of an area if he is to raise a family there. Montana has the reputation of

making national weather reports with extreme temperatures, especially in the winter.

Indeed, the state does experience great temperature extremes, but these are not indicative of the general state weather patterns. Actually, Montana's climate compares quite favorably with the New York City-Boston-Chicago metropolitan region, because Montana's average weather, although slightly colder, is far less humid. The metropolitan region mentioned receives a relatively larger number of storms. Montana has fewer cloudy days than the northeastern United States and more sunshine, especially during the summer (see figures 8.1, 8.2, and 8.3). Montana's climate is dryer than that of the eastern United States, which is a considerable disadvantage for agriculture but an advantage for recreation and other outside work. Since many of the air masses that reach Montana are dry, the lower humidity and generally high elevations in the state create cool summer evenings and less oppressive extreme temperatures than in the northeastern United States.

The average temperatures during July are roughly the same in the northeastern United States as in Montana, but the higher humidity in the east makes the summer weather more pleasant in Montana.

Table 8.1 compares Montana's summer climate with those of several major urban centers elsewhere in the nation. The standard Weather Bureau procedure was used to calculate the "Discomfort Index," which takes into account humidity and temperature. Half or more of the people are expected to be uncomfortable when the index reaches 75 and almost everyone is uncomfortable at 79. (The figures on the

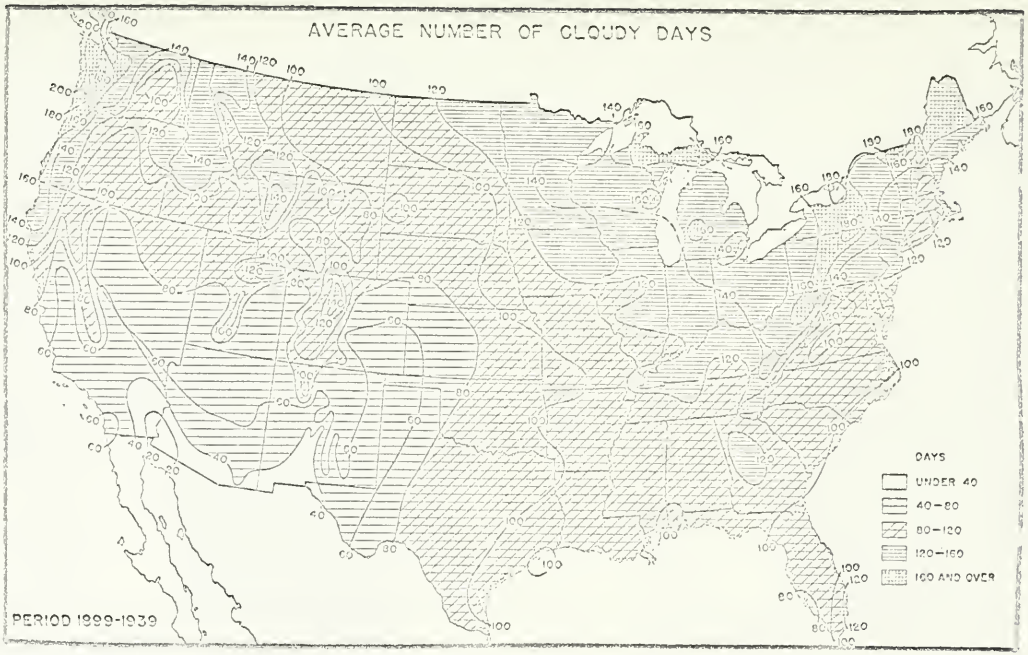


Figure 8.1. Average Annual Number of Cloudy Days in the Contiguous United States.

Source: U.S. Department of Agriculture, Yearbook of Agriculture, Climate and Man (Washington, D.C.: U.S. Government Printing Office, 1941), p. 745.

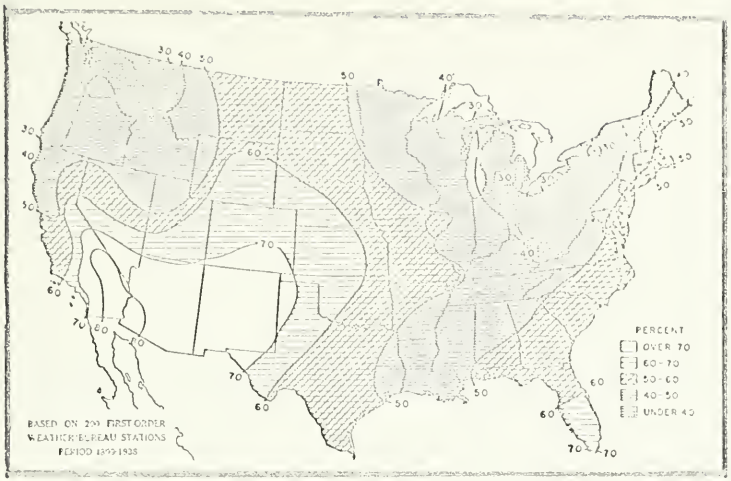


Figure 8.2. Percentage of Possible Sunshine in Winter (December--February) in the Contiguous United States.

Figure 8.3. Percentage of Possible Sunshine in Summer (June--August) in the Contiguous United States.

Source: U.S. Department of Agriculture, Yearbook of Agriculture, Climate and Man (Washington, D.C.: U.S. Government Printing Office, 1941), pp. 740-741.

TABLE 8.1

Discomfort Index for Selected United States Weather Stations Arranged According to the July Index[1]

Station	June	July	August	September
New Orleans	81.4	82.2	82.2	79.4
Miami	80.3	81.1	81.8	80.7
St. Louis	76.7	79.7	78.2	73.3
Washington, D.C.	75.4	78.4	77.1	72.8
Miles City	70.4	77.2	75.5	68.6
Salt Lake City	70.6	76.9	76.0	69.1
Detroit	73.3	76.8	75.5	69.9
New York City	72.9	76.7	75.6	70.5
Billings	68.5	76.5	75.5	65.8
Minneapolis	72.0	76.3	74.4	67.1
Chicago	72.7	75.9	74.8	69.4
Denver	71.0	75.3	74.6	68.4
Boston	70.3	74.6	73.5	68.3
Havre	67.2	73.8	72.3	64.0
Missoula	66.3	73.3	71.8	64.9
Kalispell	66.3	73.1	71.3	63.8
Great Falls	66.1	73.1	71.0	63.8
Helena	65.5	72.7	71.2	64.2
Spokane	66.3	72.3	70.9	65.7
Los Angeles	67.6	71.1	70.6	70.9
Seattle	65.6	69.7	69.4	65.5
San Francisco	66.0	67.5	67.7	68.3

Source: Calculated with data from U.S. Department of Commerce, Climatic Atlas of the United States (Washington, D.C.: U.S. Government Printing Office, 1968); selected issues of U.S. Department of Commerce, "Local Climatological Data" (Washington, D.C.: U.S. Government Printing Office, 1969); U.S. Department of Commerce, "Notes on Discomfort Index," May 5, 1959.

1. Mean dew point temperatures and normal maximum temperatures were calculated according to the following formula: Discomfort Index = .55 Temperature + .2 Dewpoint Temperature + 17.5.

table represent the average of the index for the afternoons of each month.) When the cities are ranked according to their July index, the Montana cities compare quite favorably to the national urban centers selected. The Montana cities have ratings which indicate that the average summer afternoon is not uncomfortable for most people.

Wind chill is the comparable indicator used to express human reaction to winter weather, taking into consideration both wind and temperature. Most of Montana has roughly the same January wind chill values as Boston, Chicago, Minneapolis, Detroit, and New York City, even though Montana's winter temperatures average five to ten degrees lower than those in the northeast. Again, Montana's low humidity is the crucial factor.

Within the state, weather varies greatly from region to region. The Continental Divide breaks the state into two parts, each dominated by a different air mass. The weather in the eastern part of the state is largely influenced by cool or cold dry air from northern Canada; the western part of the state, by moist Pacific maritime air masses. The result is an average January temperature below 20 degrees Fahrenheit in most of the eastern part of the state and around 20 degrees in practically all of the west. In July the effect is somewhat reversed with cool Pacific air and generally higher elevations moderating the summer temperatures in the west, while in eastern Montana the effects of long hot days and the more interior continental location keep temperatures at a generally higher level (see figure 8.4).

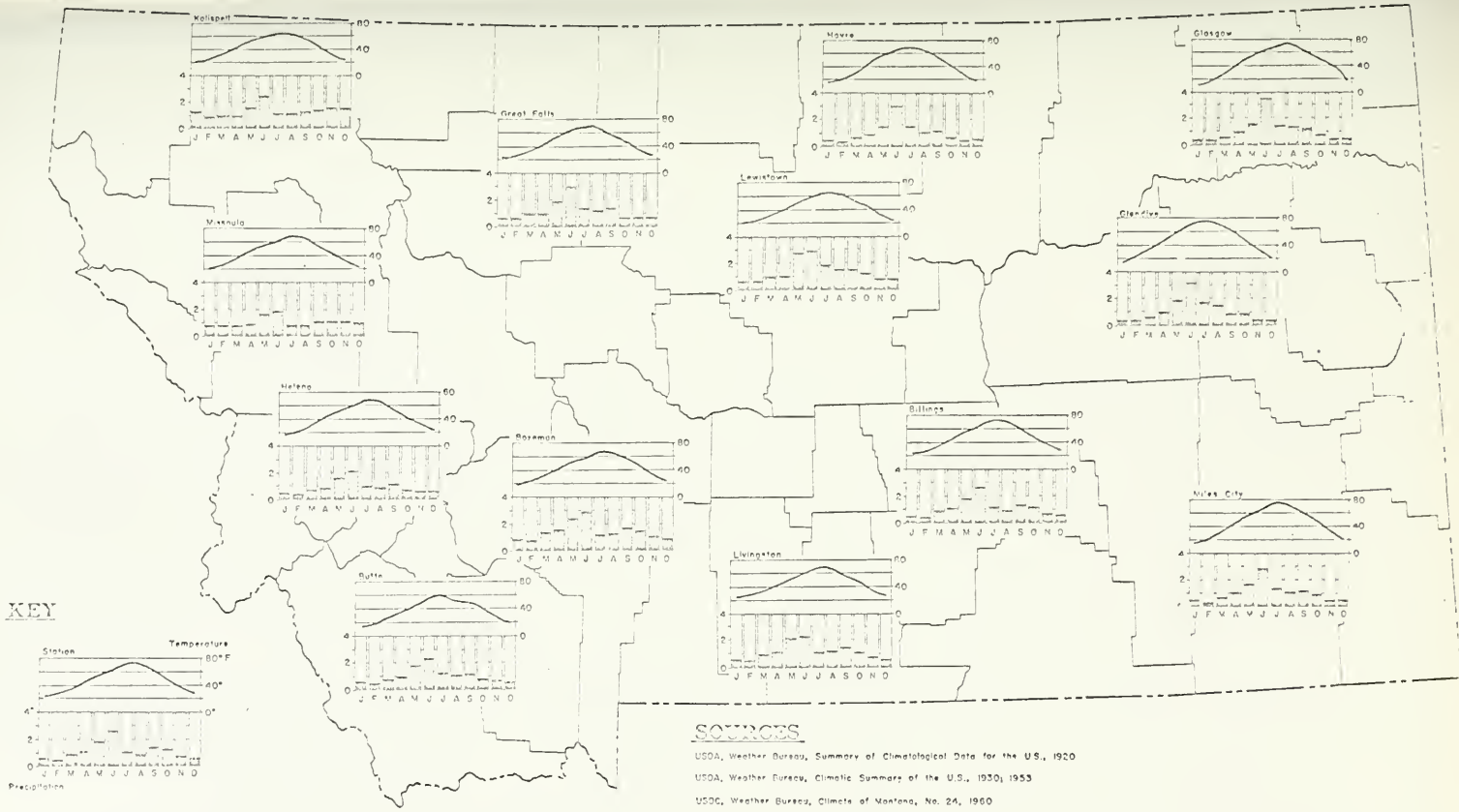


Figure 8.4. Climatic Data for Selected Stations.

Map taken from: Nicholas Helburn, Milton J. Edie and Gordon W. Lightfoot, Montana in Maps (Bozeman, Montana: Montana State College, 1962), p. 15.

The annual precipitation in Montana illustrates the state's generally dry climate. Approximately half of the state receives less than 15 inches of precipitation a year; the western part of the state receives more moisture than the eastern part because the Pacific air masses lose much moisture over the western mountainous portion of the state (see figure 8.4). The eastern part of the state receives more of its annual precipitation from summer thundershower activity, while a larger portion of the total precipitation in the west comes in the form of snow during the winter.

Except for a few areas of especially high elevation, Montana generally falls in the 30-to-60-inches of snow range; the same is true for most of the heavily populated sections of the northeastern United States (precipitation figures calculate ten inches of snow as equal to one inch of rain.) Generally, the average temperatures for cities in the eastern portion of the state are significantly higher in the summer and lower in the winter than those for western cities (see figure 8.4).

Outdoor Recreational Opportunities in Montana

The western sector of the United States has 72.3 percent of the nation's recreation acreage, with only 15.3 percent of the population. The northeast, by contrast, has 25 percent of the population packed into an area that contains only 4 percent of the national recreation acreage (see table 8.2 and figure 8.5). Nor is the recreational acreage in the western sector evenly divided--the mountainous region has 48 percent of the national recreation acreage for only 4 percent of the national population, while the Pacific region has 25 percent of the recreation acreage for 11 percent (see table 8.3).

TABLE 8.2

Total Land and Water Area, Acreage of Nonurban Public Designated Recreation Areas, and Population, by Census Region, United States, 1960[1]

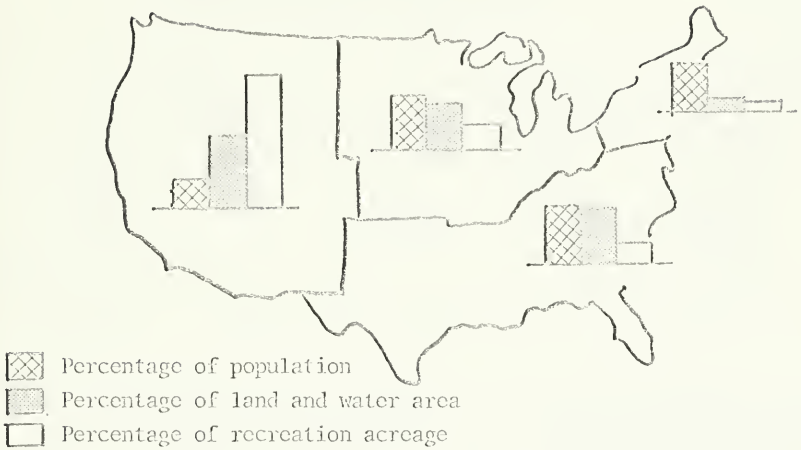
Area	Total Land and Water Area		Nonurban Public Designated Recreation Areas, Land and Water			Recreation Lands as Percentage of Total Lands	Population	
	Acres (000)	Percentage of 48 States	Number of Acres	Acres (000)	Percentage of 48 States		Millions of People	Percentage
Northeast	108,386	5.6	2,569	9,288	4.0	8.6	44.7	25.0
Northcentral	489,939	25.3	10,969	29,064	12.4	5.9	51.6	28.9
South	575,841	29.8	5,554	26,495	11.3	4.6	55.0	30.8
West	760,162	39.3	4,936	169,153	72.3	22.3	27.2	15.3
Total, 48 States	1,934,328	100.0	24,048	234,000	100.0	12.1	178.5	100.0

Source: Outdoor Recreation Resources Review Commission, Public Outdoor Recreation Areas--Acreage, Use, Potential, Study Report 1 (Washington, D.C.: U.S. Government Printing Office, 1962), p. 7.

1. Forty-eight contiguous states only.

Figure 8.5

Regional Distribution of Population,
Area, and Recreation Acreage
48 Contiguous States, 1960



Sources: Outdoor Recreation Resources Review Commission, Outdoor Recreation for America (Washington, D.C.: U.S. Government Printing Office, 1962), p. 56.

TABLE 8.3

Recreation Areas and Population
Western United States, 1962

Region	Areas		Acreage		Population	
	Number	Percentage of 48 States Total	Thousands of Acres	Percentage of 48 States Total	Thousands of People	Percentage of 48 States Total
Mountain	491	10	109,603	48	6,855	4
Pacific	621	13	55,635	25	20,339	11
Total for Western United States	1,112	23	165,238	73	27,194	15

Sources: Outdoor Recreation Resources Review Commission, Public Outdoor Recreation Areas--Acreage, Use, Potential, Study Report 1 (Washington, D.C.: U.S. Government Printing Office, 1962), p. 17.

U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States 1962, 83rd edition (Washington, D.C.: U.S. Government Printing Office, 1962), p. 10.

Types of Outdoor Recreation in Montana. Montana has a variety of terrain and sufficient wild game to make it ideal for almost any outdoor recreation. One might expect that national desire for escape from city life, back to nature, would make Montana increasingly attractive as a place to settle. Indeed, recent data, though they are very rough, suggest that there has been a net migration of retired people into western Montana. But as we have stressed in other parts of this report, it will take more jobs to attract new residents in really significant numbers.

Montana is especially known for hunting, fishing, camping, and skiing. Deer and elk hunting is extremely popular: there were 159,000 resident and 7,000 nonresident big game licenses sold in 1968. In 1967 the Fish and Game Commission in Helena estimated that 21 percent of the elk hunters and 77 percent of the deer hunters got an animal. The number of elk and deer killed by hunters in Montana was estimated at 103,140 in that year. In 1968, 187,000 fishing licenses were sold in Montana. For a state with a total population of less than 700,000, the number of hunters and fishermen is considerable.

Skiing facilities are easily accessible with 26 ski areas in Montana and more in nearby states. The number of skier visits to the 14 ski areas on national forest lands in Montana during 1968 was estimated at 327,400. And lift-lines in the state are usually short enough so that skiers don't spend most of their visits waiting. Snowmobiling is also becoming an increasingly popular sport.

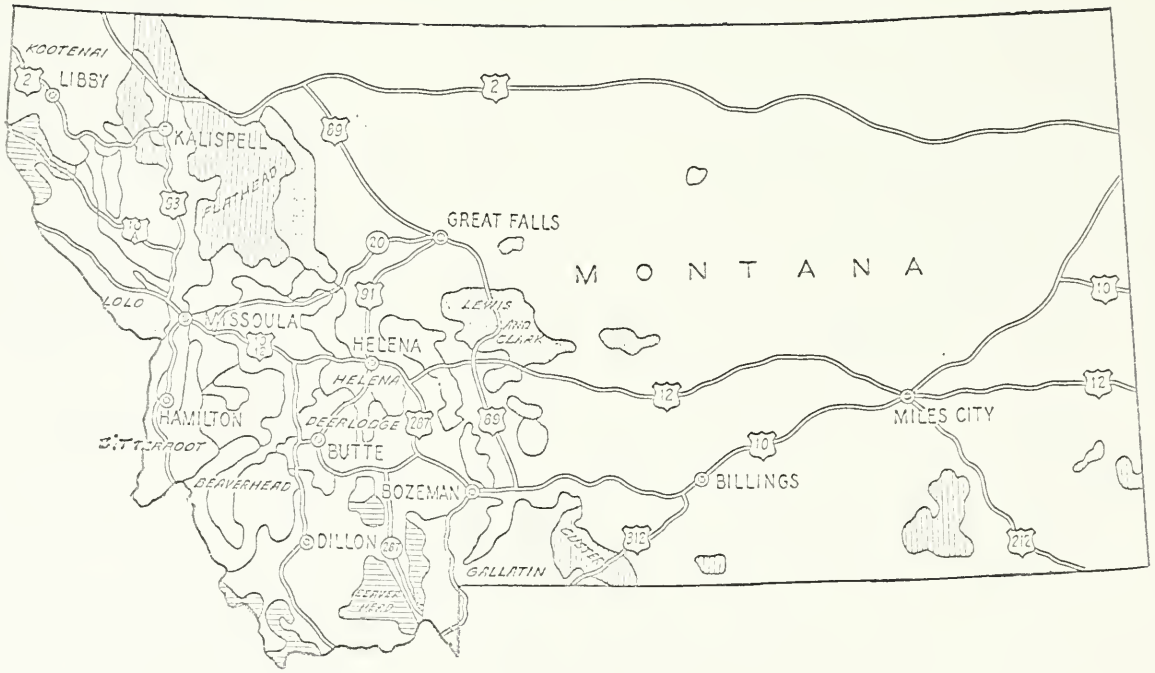
The national forest (see figure 8.6) and other natural areas in the state offer many opportunities for camping and hiking. Montana has 14,000 miles of trails maintained by the Forest Service and almost 9,000 developed camping spaces. A new concept in camping facilities is found in the nationwide franchise system operated by Kampgrounds of America, Inc. (KOA), a Billings firm incorporated in 1969. KOA provides service and shopping facilities to campers for a charge of only a few dollars per family per day. Patterned much like a motel with space for tents and campers, 19 campground areas are operated in Montana alone as a part of the national KOA system. For the more hearty adventurer, Montana has 347 licensed outfitters available for fishing or wilderness trips.

Water recreation facilities are also plentiful on Montana's many lakes and rivers. The Fish and Game Commission has counted 3,000 boat parking spaces in the state. There are 4,500 picnic tables and 1,800 acres of developed picnic sites. The National Park Service has registered 18 historical sites in Montana that illustrate the state's short but colorful history. More than 100 ghost towns in Montana have been pinpointed by the Montana Highway Commission, most of which date from the state's mining boom during the last century. Indian attractions such as buffalo jumps and rock paintings offer additional historical sites.

The figures cited here on the developed, and therefore measurable, aspects of recreation in the state, indicate that Montanans and visitors make frequent use of the opportunities the state offers.

Figure 8.6

National Forests of Montana
1969



Source: U.S. Department of Agriculture, Forest Service Directory, "Public Camp and Public Areas in Northern Region National Forests" (Missoula, Montana, 1969), pp. 22-23.

Note: Shadings are used to distinguish between adjacent forest areas.

The facilities available in the state are also increasing, as evidenced by the 118 new recreation projects underway through the Fish and Game Commission in 1969.

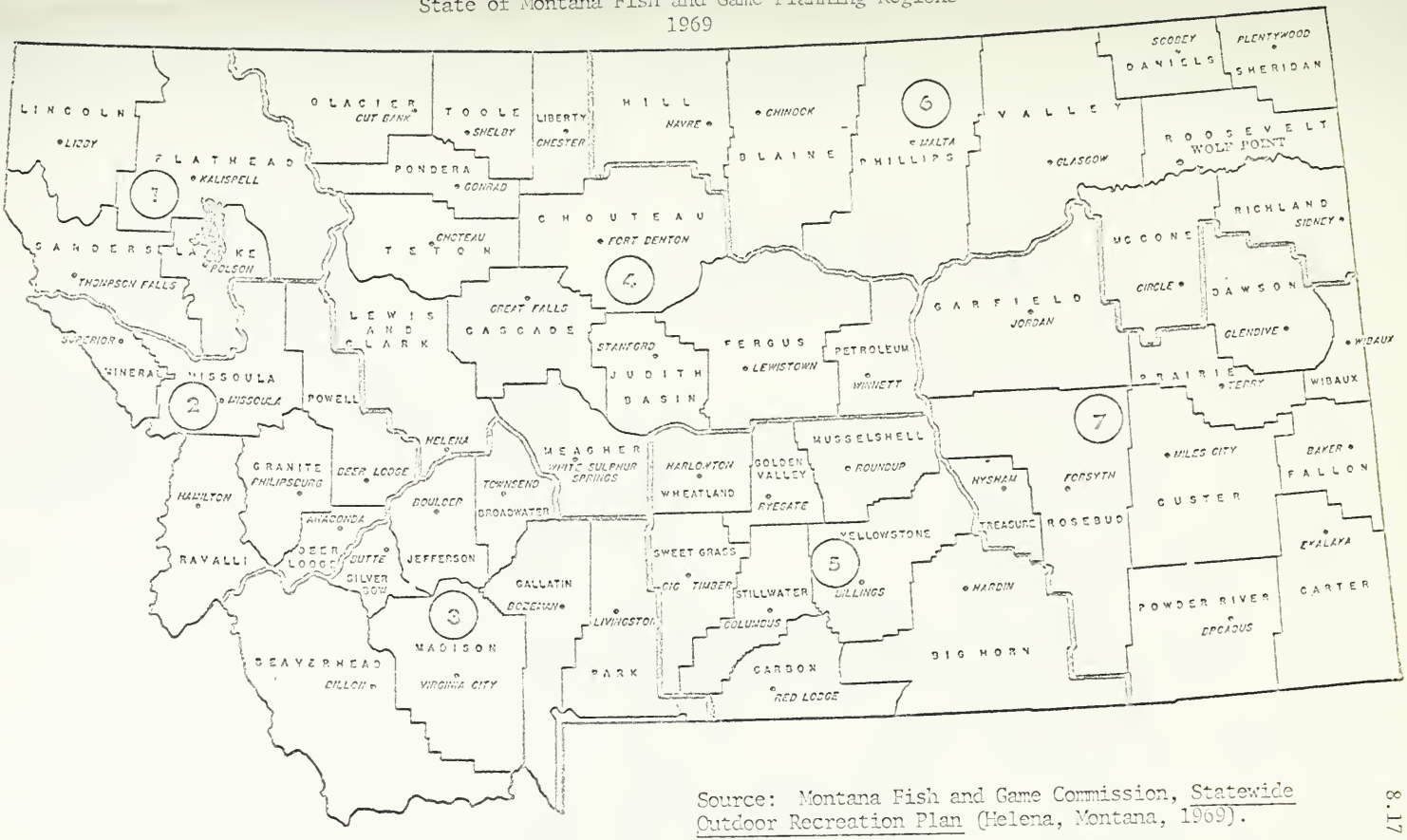
Distribution of Recreation Facilities Across the State. The distribution of outdoor recreational facilities in Montana is not directly proportional to population in the different regions. ("Regions" refers to the Fish and Game Planning Regions indicated on figure 8.7.) Table 8.4 shows the percentage of population in each region and the percentage of the state's recreation acreage. Six of the seven regions have a difference of five percentage points or more between their share of recreation acreage and population; region 1, the northwest corner of the state, has 29 percent of the recreation acreage but only 11 percent of the state population, for example. The distribution of developed facilities is not in proportion to the population distribution, though the developed facilities are more evenly distributed than is the gross recreation acreage.

THE EFFECTS OF SPARSE POPULATION UPON SOCIAL AND CULTURAL LIFE

For a period of years, historians, sociologists, and literary men have theorized that the vast spaces and awesome geography of the western United States, in particular the area known as the Great Plains, have required of their inhabitants an essentially different outlook on life, not only practical but philosophic. Success in making the changes gave man a toe-hold on the plains--failure resulted in starvation, insanity, and death. Close community membership was

Figure 8.7

State of Montana Fish and Game Planning Regions
1969



Source: Montana Fish and Game Commission, Statewide Outdoor Recreation Plan (Helena, Montana, 1969).

TABLE 8.4

Distribution of Outdoor Recreation Acreage and Population
By Fish and Game Planning Regions, Montana
1969

Region	Total Outdoor Recreation Acreage	Percentage of State Total	1968 Population	Percentage of State Total
Region 1	5,711,922	29	76,900	11
Region 2	3,783,754	20	97,800	14
Region 3	4,448,749	23	108,000	16
Region 4	3,030,112	16	172,400	25
Region 5	894,573	5	114,800	17
Region 6	605,666	3	75,400	11
Region 7	910,947	5	47,700	7
Total	19,385,723	100	693,000	100

Source: Montana Fish and Game Commission, Statewide Outdoor Recreation Plan, Appendix D (Helena, Montana, 1969); and Bureau of Business and Economic Research, "Population Estimates for Montana Counties as of July 1, 1968" (Missoula, Montana: University of Montana, July 1969).

Note: Details may not add to total because of rounding.

physically impossible under the traditional methods of farming. A large part of Montana is part of the Great Plains: the widely separated and now deserted homesteads that dot eastern Montana are mute reminders of this.

Major John W. Powell's famous Report on the Arid Region of the United States pointed out in 1878 that the Great Plains region could not support a large number of people through agriculture. He suggested changes in government land policy "as well as other areas" which were ignored at the time but were later recognized as essential for successful use of the Plains area.

In the early 1930s, Walter Prescott Webb wrote a history of the Great Plains demonstrating the adaptations which the new environment forced on migrants from more humid areas. Webb's book limited itself mostly to the physical adaptations necessary, but also dealt at length with one political adaptation: land and water laws. The laws had to undergo considerable evolution before they were adapted to Great Plains conditions--there the water is scarce and land plentiful, making the amount of land needed by a farmer greater than in other areas of the country.

The detailed development of the social effects of the plains environment waited for sociologist Carl Kraenzel. In The Great Plains in Transition, Kraenzel details adaptations in formal social structures and suggests personal and political changes required by the plains environment: government organization, which needed to become more flexible in the amount of land area served; government land policies which rarely allowed a person to secure title to the amount

of land required to support a family in Montana; and the finance policies of bankers, which did not take into consideration that farms in the area would not receive enough rain every year to raise a crop for sale.

Effects on Community Social Life. Sparse population affects the social interactions of the individual in his local community. Membership in organizations is often so small that little can be accomplished. Community social life also suffers because the population is so small it can be especially damaged by factionalization. Distances can mean a lack of social interaction, poor exchange of news, and few measures for communal unity.

Isolated communities often receive poor community services. For example, providing medical services to a sparsely populated area requires more expenditure for facilities and personnel than for a comparable number of people in a smaller area.

Medical facilities are a relatively easily quantified indicator of the social services available to a population. In a series of studies in the 1960s, Kraenzel found that despite a high number of hospital beds per 1,000 population Montana had a low number of beds per 1,000 square miles. In 1963, New York had the services of 207 physicians per 100,000 population while Montana had only 102 physicians per 100,000 to service a more widely scattered population; the national average was 150. Montana had 55 dentists per 100,000 population, almost as many as did the nation, but eastern Montana had only 29 per 100,000 population, compared to a national average of 56.

Effects on the Individual. Low population density and the consequent breakdown of the quality of social life in a community also

affect people individually. The isolation and extreme independence put strains on a person's social life which cause many people to respond by what Kraenzel calls an extraordinary individualism. In an article on the subject, Kraenzel described Montanans of this type in terms of "[A] need to acquire, [and a] disregard for others . . ." Kraenzel said this personality type was also linked to serious cases of mental illness among the sons and other relatives of these people, who, having also been indoctrinated in the philosophy of the "rugged individual," find that modern society offers little chance for such a philosophy to be put into practice. Kraenzel and Delbert Samson, in a study of the inmate population of the Montana State Hospital in Warm Springs, found that the open-country areas contributed considerably more to the hospital population than the other areas of the state.

Kraenzel's Solutions. In The Great Plains in Transition, Kraenzel sketches three general "keys for survival" on the plains--reserves, flexibility, and mobility. Financial reserves in farming areas are necessary on a major and continuing scale because of the plains' boom and bust weather cycles. Kraenzel recommends that the farmer and other people based on the plains--the small-town businessman and the organizations and governments that serve the farmer--regularly invest a portion of their income from good years to tide them over during the bad. A governmental reserve fund would provide underwriting flexibility in adjusting to market supply and demand. The income tax could replace the property tax, since property values may fail to reflect a farmer's yearly ability to pay. Greater physical

mobility would permit more efficient use of resources. For example, by maintaining two residences, farm families could move into town during slack seasons, or social services could be organized for large areas using airplanes or extensive automobile travel.

Kraenzel also suggests an organization for regional health services using general practitioners in the field backed up by specialists in the cities. Local people would be compelled to use the services of a particular general practitioner in order to assure him of sufficient clientele.

Kraenzel assumes that the basic nature of these rural areas should be maintained--family farms and towns of small, relatively independent businesses. In most counties that specialize in agriculture, however, population has been falling steadily, and probably will continue to do so (see table 8.5). Other solutions might be more viable--such as consolidating sparsely settled areas into land units large enough for farming corporations or cooperatives. Such "super-farms" might have important technological advantages, and could have their operations sufficiently centralized to operate small communities. These communities would consist of hired hands and skilled craftsmen to work large units of land--all living in one village and united by a common employer. Of course, this approach flies in the face of family farming, which itself has many virtues.

Population and the Fine Arts. The scattered population and limited funds available in a state like Montana make it more profitable for talent to migrate out of the state, or never approach it at all. It

TABLE 8.5

Population and Percentage Change
Montana Counties by Economic Region
April, 1950, 1960, and 1968

	Population			Percentage Change	
	1950	1960	1968	1950-1960	1960-1968
Flathead	31,493	32,965	38,100	4.7	15.6
Granite	2,773	3,014	2,900	8.7	- 3.8
Lake	13,835	13,104	14,300	- 5.3	9.1
Lincoln	8,693	12,537	17,900	44.2	42.8
Mineral	2,081	3,037	3,300	45.9	8.7
Missoula	35,493	44,663	55,100	25.8	23.4
Ravalli	13,101	12,341	13,800	- 5.8	11.8
Sanders	6,983	6,880	6,600	- 1.5	- 4.1
Region I	114,454	128,541	152,000	12.3	18.3
Blaine	8,516	8,091	7,600	- 5.0	- 6.1
Cascade	53,027	73,418	80,700	38.5	9.9
Chouteau	6,974	7,348	6,400	5.4	-12.9
Fergus	14,015	14,018	13,600	--	- 3.0
Glacier	9,645	11,565	12,000	19.9	3.8
Hill	14,285	18,653	15,400	30.6	-17.4
Judith Basin	3,200	3,085	3,100	- 3.6	0.5
Liberty	2,180	2,624	2,200	20.4	-16.2
Meagher	2,079	2,616	2,300	25.8	-12.1
Petroleum	1,026	894	800	-12.9	-10.5
Phillips	6,334	6,027	5,300	- 4.9	-12.1
Pondera	6,392	7,653	6,500	19.7	-15.1
Teton	7,232	7,295	6,000	0.9	-17.8
Toole	6,867	7,904	6,500	15.1	-17.8
Region II	141,772	171,191	168,400	20.8	- 1.6
Daniels	3,946	3,755	3,300	4.9	-12.1
Dawson	9,092	12,314	11,800	35.4	- 4.2
McCone	3,258	3,321	3,200	1.9	- 3.7
Richland	10,366	10,504	10,700	1.3	1.9
Roosevelt	9,580	11,731	11,100	22.5	- 5.4
Sheridan	6,674	6,458	6,000	- 3.2	- 7.1
Valley	11,353	17,080	12,800	50.4	-25.1
Wibaux	1,907	1,698	1,600	-11.0	- 5.8
Region III	56,176	66,861	60,500	19.0	- 9.5
Beaverhead	6,671	7,194	7,900	7.8	9.8
Broadwater	2,922	2,804	2,600	- 4.0	- 7.3
Deer Lodge	16,553	18,640	15,200	12.6	-18.5
Gallatin	21,902	26,045	29,200	18.9	12.1
Jefferson	4,014	4,297	5,100	7.1	18.7
Lewis & Clark	24,540	28,006	32,300	14.1	15.3
Madison	5,998	5,211	5,800	-13.1	11.3
Park	11,999	13,168	11,700	9.7	-11.2
Powell	6,301	7,002	7,500	11.1	7.1
Silver Bow	48,422	46,454	45,700	- 4.1	- 1.6
Region IV	149,322	158,821	163,000	6.4	2.6
Big Horn	9,824	10,007	10,200	1.9	1.9
Carbon	10,241	8,317	7,400	-18.8	-11.0
Golden Valley	1,337	1,203	1,200	-10.0	- 0.3
Musselshell	5,408	4,888	4,000	- 9.6	-18.2
Stillwater	5,416	5,526	4,800	2.0	-13.1
Sweet Grass	3,621	3,290	3,000	- 9.2	- 8.8
Treasure	1,402	1,345	1,200	- 4.1	-10.8
Wheatland	3,187	3,026	2,800	- 5.1	- 7.5
Yellowstone	55,875	79,016	81,400	41.4	3.0
Region V	96,311	116,618	116,000	21.1	- 0.5
Carter	2,798	2,493	2,000	-10.9	-19.8
Custer	12,661	13,227	13,800	4.5	4.3
Fallon	3,660	3,997	4,500	9.2	12.6
Garfield	2,172	1,981	1,900	- 8.8	- 4.1
Powder River	2,693	2,485	2,600	- 7.7	4.6
Prairie	2,377	2,318	2,000	- 2.5	-13.7
Rosebud	6,570	6,187	6,300	- 5.8	1.8
Region VI	32,931	32,688	33,100	- 0.7	1.3
STATE	591,000	674,700	693,000	14.2	2.7

Sources: U.S. Department of Commerce, Bureau of the Census; and Montana Economic Study.

is hard to provide productions or performances of any kind, because of the limited audiences in any given area, and because the expenses of time and travel for touring attractions are heavy.

Despite these difficulties, Montana has managed to produce a small but steady stream of cultural achievements. On a per capita basis, Montana has more summer theaters than most states--it has had as many as 13 summer stock theaters and a semiprofessional touring company, the Montana Repertory Theater. The state has six civic symphonies, which is roughly one orchestra per 114,000 people, higher than the ratio for New York City. There are 32 museums in Montana, an indication of interest in the state's past, and an attraction for tourists as well.

An outstanding pottery school, the Archie Bray Foundation in Helena, boasts a national reputation equal to that of the Haystack in Maine and Penland in North Carolina. Nationally known ceramists, many from Montana, have studied and taught at the Foundation.

In other areas of the fine arts, Montana compares less favorably with the more populous states. Montana's professional visual artists--such as painters, sculptors, printmakers--are few in number and on the average their income is marginal. The state's lack of a sizeable number of wealthy patrons of the arts is partly responsible. Montana has limited public facilities for exhibitions and individual artists must rely heavily upon collector-dealers, private galleries, and markets outside the state.

Montana has no performing professional groups in serious music, dance, or theater, but a number of nonprofessional groups are involved

in these areas of the fine arts. The Montana Repertory Theater, associated with the University of Montana at Missoula, is semi-professional. It uses about one-quarter nonstudent personnel, some of whom are professionals.

Music and theater programs are generally centered in the larger cities in Montana, such as Billings, Missoula, Helena, Butte, and Bozeman, but there are smaller communities which are doing well on their own, especially in the field of drama, including Big Fork, Virginia City, Livingston, Lewistown, Miles City, Whitefish, West Yellowstone, Scobey, and Fort Peck.

Montana's vast area and scattered population make touring groups the only access to fine arts for most small communities. In its three-year history, the Montana Repertory Theater Company has played to audiences in as many as 11 cities in the state during a single season and has recorded as many as 31 performances on tour. In the eastern part of the state, the Billings Studio Theater is currently developing touring capabilities.

Music tours are organized on a fairly large scale. The civic symphonies of Billings, Great Falls, and Missoula have toured within their respective regions; the Great Falls Symphony included an opera in their 1969-1970 repertoire. Numerous Montana communities engage the Community Concert series on a seasonal basis, and, similarly, community groups sponsor touring dance and music organizations. Through the efforts of such organizations, and also those of the Montana Arts Council, Montanans have attended tour performances by eminent performers, including soloists and such renowned groups as

the Denver Symphony, Ballet West, Seattle Opera Company, and the Utah Symphony.

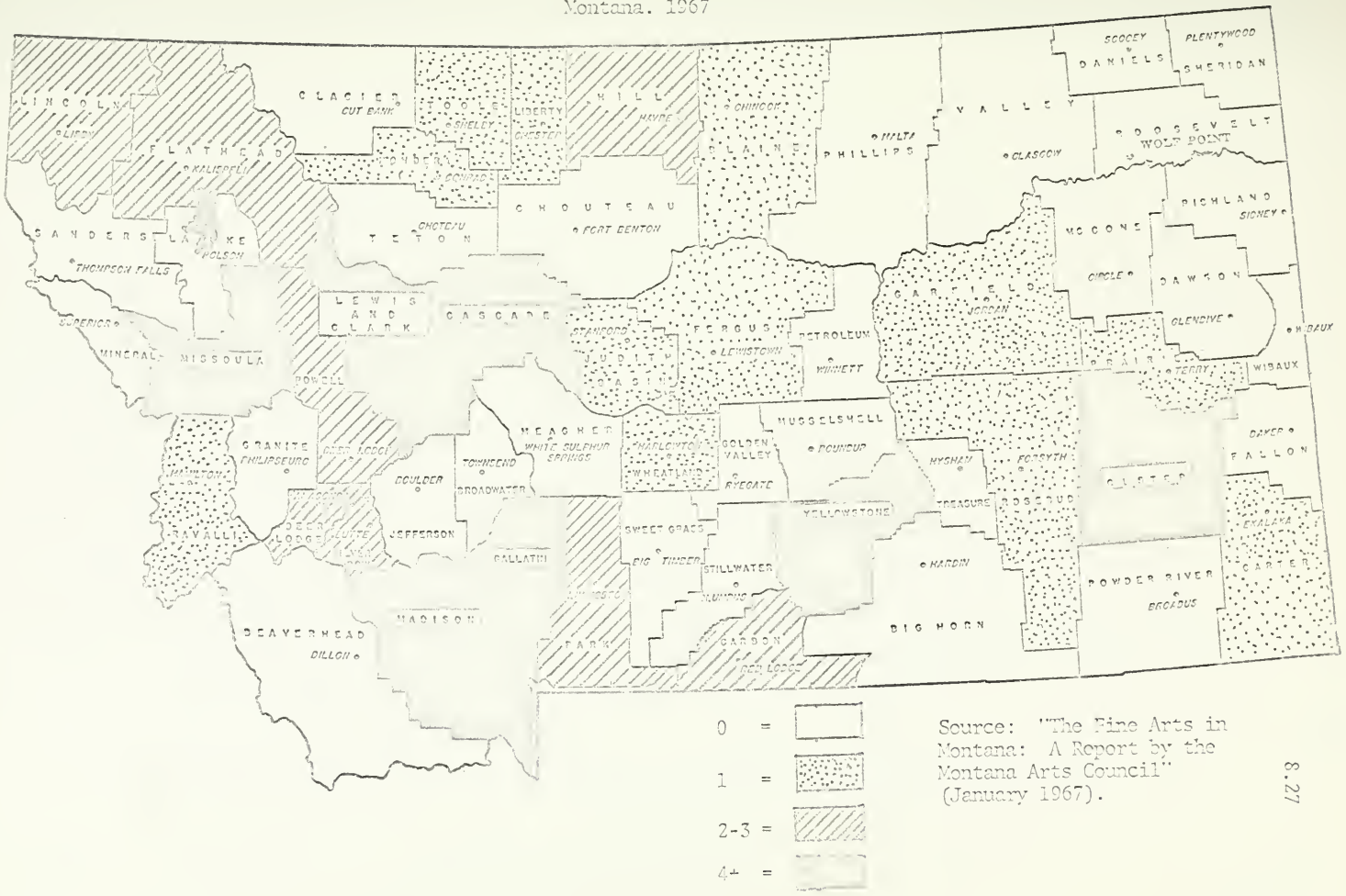
Montana has four professional touring ensembles which, under the auspices of Young Audiences, Inc., perform in elementary schools across the state. In 1968-1969 more than 20,000 children witnessed and participated in Young Audience concerts.

Although Montana has no professional dance group, the Montana Dance Arts Association is promoting interest by sponsoring a spring dance festival in Helena, with 300 students participating. The units of the University system at Missoula and Bozeman sponsor one-week sessions with professional dance companies, to which the public is generally invited without cost. A cooperative effort by the National Endowment for the Arts and the Montana Arts Council brings performances and seminar-workshops of both ballet and modern dance companies to several cities--Bozeman, Butte, Helena, Kalispell, and Missoula.

Distribution of Fine Arts Opportunities. One of the biggest problems for fine arts enthusiasts in Montana is that cultural facilities and organizations are concentrated in the larger cities. For example, Missoula and Billings have relatively well-developed programs in the arts, as, to a lesser extent, do Great Falls, Bozeman, and Helena. The distribution of nonstudent cultural organizations found in a survey by the Montana Arts Council shows many counties in Montana with no fine arts organizations for the nonstudent population (see figure 8.8). The distribution through the six economic regions is still more uneven--varying from 28 organizations in Region IV (southwestern Montana) to only one in Region III (northwestern Montana). (See figure 8.9).

Figure 8.8

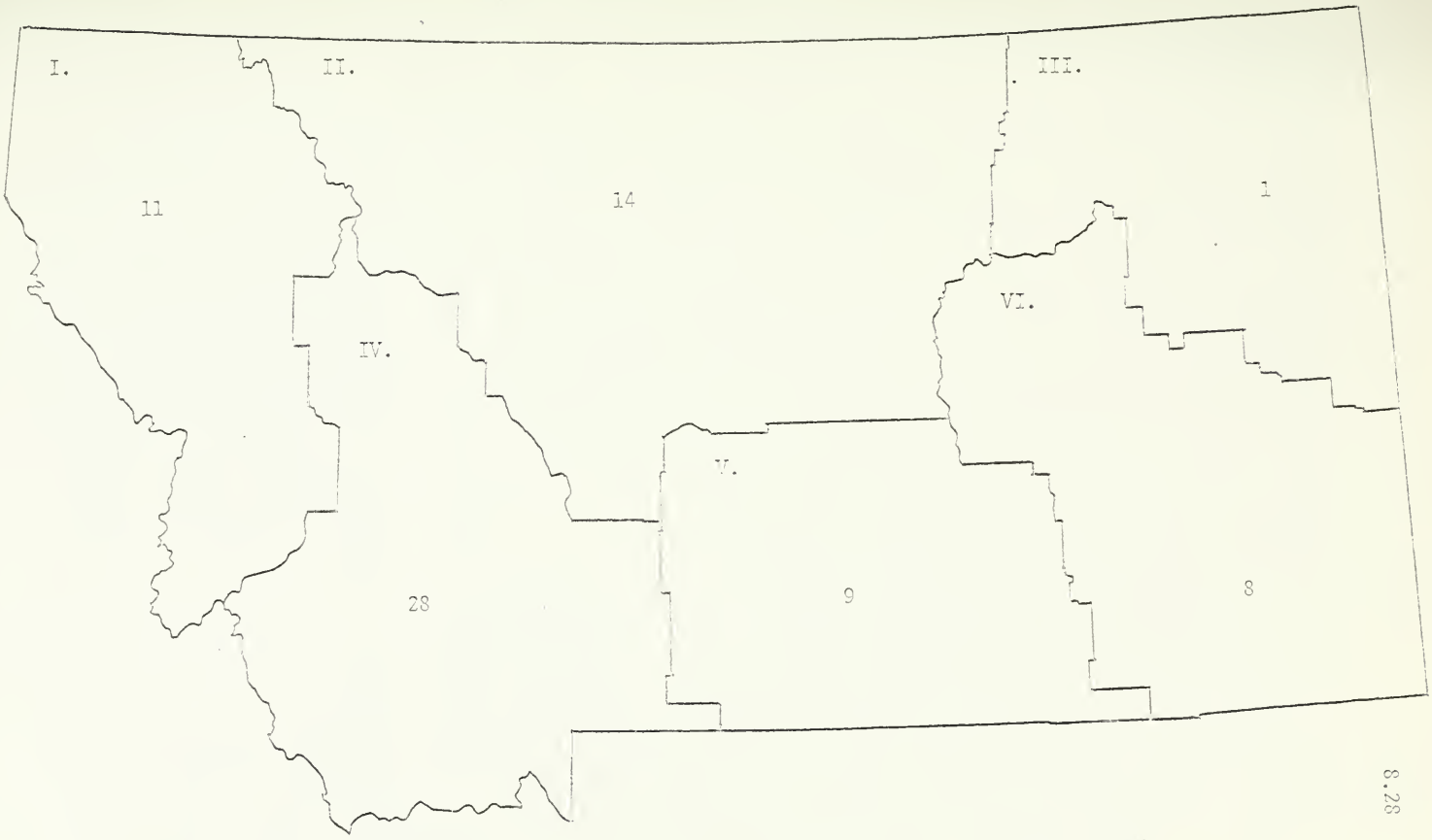
Cultural Organizations for the Nonstudent Population
Montana. 1967



Source: "The Fine Arts in Montana: A Report by the Montana Arts Council" (January 1967).

Figure 8.9

Cultural Organizations for the Nonstudent Population
Montana Economic Regions, 1967



Source: "The Fine Arts in Montana: A Report by the Montana Arts Council" (January 1967).

This relative concentration is due partly to the fact that many cultural activities in Montana are associated with the branches of the University of Montana. Missoula County, for example, site of the University of Montana, accredited in most of the fine arts, has the second largest number of nonstudent cultural organizations in the state. The colleges in Montana have made a considerable contribution to the development of fine arts in Montana cities. The college touring programs help offset to some degree the lack of cultural resources in many counties. For example, the 1970 spring itinerary of two of several groups from the Music Department at the University of Montana at Missoula included Ronan, Polson, Columbia Falls, Eureka, Libby, Plains, Shelby, Chester, Havre, Gildford, and Whitefish. The 1970 spring tour of the Montana Repertory Theater covered the Montana communities of Helena, Conrad, Poplar, Glasgow, Chester, Great Falls, Butte, Billings, Bozeman, and Havre.

The distribution of opportunities in the fine arts in Montana indicates that while some of the larger cities in the state compare favorably to cities of similar size in other areas, large areas of the state have virtually no fine arts programs available except touring groups.

Possibilities for the Fine Arts in Montana. The Montana Institute of the Arts, which has been in existence for 20 years, encompasses all of the creative arts. Of the 21 branches, five are in the cities which already have the most highly developed fine arts programs. The remaining 16 are located in a number of small towns such as Troy, Seeley Lake, and Eureka. Total membership is about 1,000. On occasion, the branches sponsor events which encompass and encourage

community participation and attendance, such as art exhibitions and performances, but generally the members confine their efforts to interdisciplinary activities involving their membership.

The Montana Arts Council has been active in securing financial support for the arts in Montana but the resources available have not been large enough for the Council to make any concentrated effort to equalize the distribution of fine arts opportunities in the state. The Council has attempted to assist small communities by offering to match money raised by nonprofit sponsors with one-half federal matching grants, but the everpresent obstacle is that the community's portion remains too large. Possibly state funds could be used to match the federal portion, alleviating local burdens considerably.

In 1968-1969, the Montana Arts Council awarded matching grants to 25 arts organizations, and in 1970-1971, no less than 50 grants are anticipated. Since 1968, the attendance figures for projects assisted by the Montana Arts Council have reached 250,000 per year. In three years, the Montana Arts Council has secured matching sources of more than three times its investment, mostly in contributed services by artists. But because of inadequate broad-based support, many projects deemed worthy of the Council's support were drastically curtailed or abandoned entirely in favor of programs of higher priority.

Several communities in Montana have formed citizens committees known as arts councils or commissions and have, with limited success, engaged with private enterprise in obtaining cultural programs: the Blackfoot Art Foundation, Browning; the Havre Cultural Affairs Commission, Havre; the Billings Arts Association, Billings; the Great

Falls Arts Council, Great Falls; the Liberty County Arts Council, Chester; the Northern Montana Fine Arts Council, Plentywood; the Flathead Valley Arts Association, Kalispell; and the Fort Peck Arts Council, Fort Peck. Additional councils or commissions are in the planning stage in Butte and Cut Bank. All are autonomous organizations, desirous of improving or perpetuating local activities, and do not seek statewide affiliations or support; nearly all are funded in part by the Montana Arts Council.

The Future of the Fine Arts in Montana. There are strong reasons for pursuing development of the fine arts in Montana. Cultural performances and exhibitions greatly enhance the state's natural attractions for tourists, but more important, permanent residents need cultural activities for themselves and for their children. School administrators in the state, with limited funds, are trying to provide more varied arts programs in primary and secondary schools. Enrollment in the University of Montana Art Department has jumped from 70 majors to 290 between 1963 and 1970. A majority of these people are graduates of Montana high schools, but few of them, upon graduation from the University, will find employment in fine arts, or cause to stay, in Montana. To paraphrase the Rockefeller Panel Report, The Performing Arts, America's youth are attracted to areas of cultural excellence.

Funding for the arts in Montana is meagre. In other states, various avenues are utilized: corporate and foundation philanthropy, fund drives, specific taxes, individual donations, etc. Many cities--Los Angeles and San Francisco, among others--have created "culture taxes" in cooperation with hotel-motel owners whereby a percentage

of the daily rate of occupied rooms is directed to support of both cultural centers and arts organizations; the strengthening of cultural attractions fills additional rooms, making projects mutually beneficial.

Presently in Montana only a few mutually beneficial alliances exist between businessmen and artistic leaders, notably in Big Fork and Virginia City. The Big Fork Development Company, a nonprofit composite of business leaders in Big Fork, owns and operates the Big Fork Summer Playhouse and can readily testify to the importance of the theater to the entire community. In Virginia City, the artistic activities presented each summer are a key tourist attraction, complementing the local Old West motif.

In other states, corporate business has sought to maintain standards of cultural excellence on regional and local levels, as exemplified by the Lilly Company (Indianapolis) and 3M Company (Minneapolis). The Eastman Kodak Company, Rochester, New York, was very cautious in selecting a location for the construction of its new, 10,000 employee plant--among the crucial criteria were adequate cultural facilities and opportunities, and accessibility of units of higher education. The choice was the Boulder-Denver-Fort Collins triangle.

Among the Rocky Mountain states, Montana offers as much potential as any; its recreational and resort facilities which attract millions each year could be developed for summer arts festivals along the lines of those in Aspen, Colorado, or Interlochen, Michigan.